



4

1/67

SEQUENCE LISTING

<110> Bertin, John

<120> NOVEL MOLECULES OF THE CARD-RELATED PROTEIN FAMILY AND USES THEREOF

<130> 07334-124001

<140> US 09/340,620

<141> 1999-06-28

<150> US 09/245,281

<151> 1999-02-05

<150> US 09/207,359

<151> 1998-12-08

<150> US 09/099,041

<151> 1998-06-17

<150> US 09/019,942

<151> 1998-02-06

<160> 71

<170> FastSEQ for Windows Version 4.0

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<212> DNA

<213> Homo sapiens

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<222> (214)...(1833)

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gcacacccgg	aaccggcctg	agcgcgccgg	acc atg aac	ggg gag gcc	atc tgc	234		
			Met Asn Gly	Glu Ala Ile	Cys			
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agc gcc	ctg ccc	acc att	ccc tac	cac aaa	ctc gcc	gac ctg	cgc tac	282
Ser Ala	Leu Pro	Thr Ile	Pro Tyr	His Lys	Leu Ala	Asp Leu	Arg Tyr	
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ctg agc	cgc ggc	gcc tot	ggc act	gtg tgc	tcc gcc	cgc cac	gca gac	330
Leu Ser	Arg Gly	Ala Ser	Gly Thr	Val Ser	Ser Ser	Ala Arg	His Ala	Asp
	25		30		35			
tgg cgc	gtc cag	gtg gcc	gtg aag	cac ctg	cac atc	cac act	cgc ctg	378
Trp Arg	Val Gln	Val Ala	Val Lys	His Leu	His Ile	His Thr	Pro Leu	
	40		45		50		55	
ctc gac	agt gaa	aga aag	gat gtc	tta aga	gaa gct	gaa att	tta cac	426
Leu Asp	Ser Glu	Arg Lys	Asp Val	Leu Arg	Glu Ala	Glu Ile	Leu His	
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aaa gct aga ttt agt tac att ctt cca att ttg gga att tgc aat gag Lys Ala Arg Phe Ser Tyr Ile Leu Pro Ile Leu Gly Ile Cys Asn Glu 75 80 85	474
cct gaa ttt ttg gga ata gtt act gaa tac atg cca aat gga tca tta Pro Glu Phe Leu Gly Ile Val Thr Glu Tyr Met Pro Asn Gly Ser Leu 90 95 100	522
aat gaa ctc cta cat agg aaa act gaa tat cct gat gtt gct tgg cca Asn Glu Leu Leu His Arg Lys Thr Glu Tyr Pro Asp Val Ala Trp Pro 105 110 115	570
ttg aga ttt cgc atc ctg cat gaa att gcc ctt ggt gta aat tac ctg Leu Arg Phe Arg Ile Leu His Glu Ile Ala Leu Gly Val Asn Tyr Leu 120 125 130 135	618
cac aat atg act cct cct tta ctt cat cat gac ttg aag act cag aat His Asn Met Thr Pro Pro Leu Leu His His Asp Leu Lys Thr Gln Asn 140 145 150	666
atc tta ttg gac aat gaa ttt cat gtt aag att gca gat ttt ggt tta Ile Leu Leu Asp Asn Glu Phe His Val Lys Ile Ala Asp Phe Gly Leu 155 160 165	714
tca aag tgg cgc atg atg tcc ctc tca cag tca cga agt agc aaa tct Ser Lys Trp Arg Met Met Ser Leu Ser Gln Ser Arg Ser Ser Lys Ser 170 175 180	762
gca cca gaa gga ggg aca att atc tat atg cca cct gaa aac tat gaa Ala Pro Glu Gly Gly Thr Ile Ile Tyr Met Pro Pro Glu Asn Tyr Glu 185 190 195	810
cct gga caa aaa tca agg gcc agt atc aag cac gat ata tat agc tat Pro Gly Gln Lys Ser Arg Ala Ser Ile Lys His Asp Ile Tyr Ser Tyr 200 205 210 215	858
gca gtt atc aca tgg gaa gtg tta tcc aga aaa cag cct ttt gaa gat Ala Val Ile Thr Trp Glu Val Leu Ser Arg Lys Gln Pro Phe Glu Asp 220 225 230	906
gtc acc aat cct ttg cag ata atg tat agt gtg tca caa gga cat cga Val Thr Asn Pro Leu Gln Ile Met Tyr Ser Val Ser Gln Gly His Arg 235 240 245	954
cct gtt att aat gaa gaa agt ttg cca tat gat ata cct cac cga gca Pro Val Ile Asn Glu Glu Ser Leu Pro Tyr Asp Ile Pro His Arg Ala 250 255 260	1002
cgt atg atc tct cta ata gaa agt gga tgg gca caa aat cca gat gaa Arg Met Ile Ser Leu Ile Glu Ser Gly Trp Ala Gln Asn Pro Asp Glu 265 270 275	1050
aga cca tct ttc tta aaa tgt tta ata gaa ctt gaa cca gtt ttg aga Arg Pro Ser Phe Leu Lys Cys Leu Ile Glu Leu Glu Pro Val Leu Arg 280 285 290 295	1098
aca ttt gaa gag ata act ttt ctt gaa gct gtt att cag cta aag aaa Thr Phe Glu Glu Ile Thr Phe Leu Glu Ala Val Ile Gln L u Lys Lys 300 305 310	1146

aca aag tta cag agt gtt tca agt gcc att cac cta tgt gac aag aag	1194
Thr Lys Leu Gln Ser Val Ser Ser Ala Ile His Leu Cys Asp Lys Lys	
315 320 325	
aaa atg gaa tta tct ctg aac ata cct gta aat cat ggt cca caa gag	1242
Lys Met Glu Leu Ser Leu Asn Ile Pro Val Asn His Gly Pro Gln Glu	
330 335 340	
gaa tca tgt gga tcc tct cag ctc cat gaa aat agt ggt tct cct gaa	1290
Glu Ser Cys Gly Ser Ser Gln Leu His Glu Asn Ser Gly Ser Pro Glu	
345 350 355	
act tca agg tcc ctg cca gct cct caa gac aat gat ttt tta tct aga	1338
Thr Ser Arg Ser Leu Pro Ala Pro Gln Asp Asn Asp Phe Leu Ser Arg	
360 365 370 375	
aaa gct caa gac tgt tat ttt atg aag ctg cat cac tgt cct gga aat	1386
Lys Ala Gln Asp Cys Tyr Phe Met Lys Leu His His Cys Pro Gly Asn	
380 385 390	
cac agt tgg gat agc acc att tct gga tct caa agg gct gca ttc tgt	1434
His Ser Trp Asp Ser Thr Ile Ser Gly Ser Gln Arg Ala Ala Phe Cys	
395 400 405	
gat cac aag acc att cca tgc tct tca gca ata ata aat cca ctc tca	1482
Asp His Lys Thr Ile Pro Cys Ser Ser Ala Ile Ile Asn Pro Leu Ser	
410 415 420	
act gca gga aac tca gaa cgt ctg cag cct ggt ata gcc cag cag tgg	1530
Thr Ala Gly Asn Ser Glu Arg Leu Gln Pro Gly Ile Ala Gln Gln Trp	
425 430 435	
atc cag agc aaa agg gaa gac att gtg aac caa atg aca gaa gcc tgc	1578
Ile Gln Ser Lys Arg Glu Asp Ile Val Asn Gln Met Thr Glu Ala Cys	
440 445 450 455	
ctt aac cag tcg cta gat gcc ctt ctg tcc agg gac ttg atc atg aaa	1626
Leu Asn Gln Ser Leu Asp Ala Leu Leu Ser Arg Asp Leu Ile Met Lys	
460 465 470	
gag gac tat gaa ctt gtt agt acc aag cct aca agg acc tca aaa gtc	1674
Glu Asp Tyr Glu Leu Val Ser Thr Lys Pro Thr Arg Thr Ser Lys Val	
475 480 485	
aga caa tta cta gac act act gac atc caa gga gaa gaa ttt gcc aaa	1722
Arg Gln Leu Leu Asp Thr Thr Asp Ile Gln Gly Glu Glu Phe Ala Lys	
490 495 500	
gtt ata gta caa aaa ttg aaa gat aac aaa caa atg ggt ctt cag cct	1770
Val Ile Val Gln Lys Leu Lys Asp Asn Lys Gln Met Gly Leu Gln Pro	
505 510 515	
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Tyr Pro Glu Ile Leu Val Val Ser Arg Ser Pro Ser Leu Asn Leu Leu	
520 525 530 535	
caa aat aaa agc atg taagtgactg tttttcaaga agaaatgtgt ttcataaaaa	1873
Gln Asn Lys Ser Met	
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 <212> PRT
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<400> 2

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Ser	Ser	Ala	Arg	His	Ala	Asp	Trp	Arg	Val	Gln	Val	Ala	Val	Lys	His
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Leu	His	Ile	His	Thr	Pro	Leu	Leu	Asp	Ser	Glu	Arg	Lys	Asp	Val	Leu
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Arg	Glu	Ala	Glu	Ile	Leu	His	Lys	Ala	Arg	Phe	Ser	Tyr	Ile	Leu	Pro
	65				70					75					80
Ile	Leu	Gly	Ile	Cys	Asn	Glu	Pro	Glu	Phe	Leu	Gly	Ile	Val	Thr	Glu
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Tyr	Met	Pro	Asn	Gly	Ser	Leu	Asn	Glu	Leu	Leu	His	Arg	Lys	Thr	Glu
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Tyr	Pro	Asp	Val	Ala	Trp	Pro	Leu	Arg	Phe	Arg	Ile	Leu	His	Glu	Ile
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Ala	Leu	Gly	Val	Asn	Tyr	Leu	His	Asn	Met	Thr	Pro	Pro	Leu	Leu	His
	130					135					140				
His	Asp	Leu	Lys	Thr	Gln	Asn	Ile	Leu	Leu	Asp	Asn	Glu	Phe	His	Val
	145				150					155					160
Lys	Ile	Ala	Asp	Phe	Gly	Leu	Ser	Lys	Trp	Arg	Met	Met	Ser	Leu	Ser
			165						170					175	
Gln	Ser	Arg	Ser	Ser	Lys	Ser	Ala	Pro	Glu	Gly	Gly	Thr	Ile	Ile	Tyr
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Met	Pro	Pro	Glu	Asn	Tyr	Glu	Pro	Gly	Gln	Lys	Ser	Arg	Ala	Ser	Ile
		195					200					205			
Lys	His	Asp	Ile	Tyr	Ser	Tyr	Ala	Val	Ile	Thr	Trp	Glu	Val	Leu	Ser
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Arg	Lys	Gln	Pro	Phe	Glu	Asp	Val	Thr	Asn	Pro	Leu	Gln	Ile	Met	Tyr
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Ser	Val	Ser	Gln	Gly	His	Arg	Pro	Val	Ile	Asn	Glu	Glu	Ser	Leu	Pro
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Tyr	Asp	Ile	Pro	His	Arg	Ala	Arg	Met	Ile	Ser	Leu	Ile	Glu	Ser	Gly
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Trp	Ala	Gln	Asn	Pro	Asp	Glu	Arg	Pro	Ser	Phe	Leu	Lys	Cys	Leu	Ile
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Glu	Leu	Glu	Pro	Val	Leu	Arg	Thr	Phe	Glu	Glu	Ile	Thr	Phe	Leu	Glu
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Ala	Val	Ile	Gln	Leu	Lys	Lys	Thr	Lys	Leu	Gln	Ser	Val	Ser	Ser	Ala
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Ile	His	Leu	Cys	Asp	Lys	Lys	Lys	Met	Glu	Leu	Ser	Leu	Asn	Ile	Pro
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Val	Asn	His	Gly	Pro	Gln	Glu	Glu	Ser	Cys	Gly	Ser	Ser	Gln	Leu	His
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Glu	Asn	Ser	Gly	Ser	Pro	Glu	Thr	Ser	Arg	Ser	Leu	Pro	Ala	Pro	Gln
		355					360					365			
Asp	Asn	Asp	Phe	Leu	Ser	Arg	Lys	Ala	Gln	Asp	Cys	Tyr	Phe	Met	Lys
	370					375					380				
Leu	His	His	Cys	Pro	Gly	Asn	His	Ser	Trp	Asp	Ser	Thr	Ile	Ser	Gly
					390					395					400
Ser	Gln	Arg	Ala	Ala	Phe	Cys	Asp	His	Lys	Thr	Ile	Pro	Cys	Ser	Ser
			405						410					415	
Ala	Ile	Ile	Asn	Pro	Leu	Ser	Thr	Ala	Gly	Asn	Ser	Glu	Arg	Leu	Gln
			420					425					430		
Pro	Gly	Ile	Ala	Gln	Gln	Trp	Ile	Gln	Ser	Lys	Arg	Glu	Asp	Ile	Val
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Asn Gln Met Thr Glu Ala Cys Leu Asn Gln Ser Leu Asp Ala Leu Leu
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 Ser Arg Asp Leu Ile Met Lys Glu Asp Tyr Glu Leu Val Ser Thr Lys
 465 470 475 480
 Pro Thr Arg Thr Ser Lys Val Arg Gln Leu Leu Asp Thr Thr Asp Ile
 485 490 495
 Gln Gly Glu Glu Phe Ala Lys Val Ile Val Gln Lys Leu Lys Asp Asn
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 Lys Gln Met Gly Leu Gln Pro Tyr Pro Glu Ile Leu Val Val Ser Arg
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 aaggatgtct taagagaagc tgaaatttta cacaaagcta gatttagtta cattcttcca 240
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 ggatcattaa atgaactcct acataggaaa actgaatatc ctgatgttgc ttggccattg 360
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 tttgccaaag ttatagtaca aaaattgaaa gataacaaac aaatgggtct tcagccttac 1560
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 Ser Ser Ala Arg His Ala Asp Trp Arg Val Gln Val Ala Val Lys His
 35 40 45
 Leu His Ile His Thr Pro Leu L u Asp Ser Glu Arg Lys Asp Val Leu
 50 55 60

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Arg Glu Ala Glu Ile Leu His Lys Ala Arg Phe Ser Tyr Ile Leu Pro
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Ile Leu Gly Ile Cys Asn Glu Pro Glu Phe Leu Gly Ile Val Thr Glu
      85      90      95
Tyr Met Pro Asn Gly Ser Leu Asn Glu Leu Leu His Arg Lys Thr Glu
      100      105      110
Tyr Pro Asp Val Ala Trp Pro Leu Arg Phe Arg Ile Leu His Glu Ile
      115      120      125
Ala Leu Gly Val Asn Tyr Leu His Asn Met Thr Pro Pro Leu Leu His
      130      135      140
His Asp Leu Lys Thr Gln Asn Ile Leu Leu Asp Asn Glu Phe His Val
145      150      155      160
Lys Ile Ala Asp Phe Gly Leu Ser Lys Trp Arg Met Met Ser Leu Ser
      165      170      175
Gln Ser Arg Ser Ser Lys Ser Ala Pro Glu Gly Gly Thr Ile Ile Tyr
      180      185      190
Met Pro Pro Glu Asn Tyr Glu Pro Gly Gln Lys Ser Arg Ala Ser Ile
      195      200      205
Lys His Asp Ile Tyr Ser Tyr Ala Val Ile Thr Trp Glu Val Leu Ser
      210      215      220
Arg Lys Gln Pro Phe Glu Asp Val Thr Asn Pro Leu Gln Ile Met Tyr
225      230      235      240
Ser Val Ser Gln Gly His Arg Pro Val Ile Asn Glu Glu Ser Leu Pro
      245      250      255
Tyr Asp Ile Pro His Arg Ala Arg Met Ile Ser Leu Ile Glu Ser Gly
      260      265      270
Trp Ala Gln Asn Pro Asp Glu Arg Pro Ser Phe Leu Lys Cys Leu Ile
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Glu Leu Glu Pro Val Leu Arg Thr Phe Glu Glu Ile
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<210> 5
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 <213> Homo sapiens

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Leu Asn Ile Pro Val Asn His Gly Pro Gln Glu Glu Ser Cys Gly Ser
      35      40      45
Ser Gln Leu His Glu Asn Ser Gly Ser Pro Glu Thr Ser Arg Ser Leu
      50      55      60
Pro Ala Pro Gln Asp Asn Asp Phe Leu Ser Arg Lys Ala Gln Asp Cys
      65      70      75      80
Tyr Phe Met Lys Leu His His Cys Pro Gly Asn His Ser Trp Asp Ser
      85      90      95
Thr Ile Ser Gly Ser Gln Arg Ala Ala Phe Cys Asp His Lys Thr Ile
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Pro Cys Ser Ser Ala Ile Ile Asn Pro Leu Ser Thr Ala Gly Asn Ser
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Glu Arg Leu
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		20					25						30		
Leu	Ser	Arg	Asp	Leu	Ile	Met	Lys	Glu	Asp	Tyr	Glu	Leu	Val	Ser	Thr
	35						40					45			
Lys	Pro	Thr	Arg	Thr	Ser	Lys	Val	Arg	Gln	Leu	Leu	Asp	Thr	Thr	Asp
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Ile	Gln	Gly	Glu	Glu	Phe	Ala	Lys	Val	Ile	Val	Gln	Lys	Leu	Lys	Asp
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Asn	Lys	Gln	Met	Gly	Leu	Gln	Pro	Tyr	Pro	Glu	Ile	Leu	Val	Val	Ser
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<212> DNA

<213> Homo sapiens

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ctgctgagag	gacacacgca	gctgaagatg	aatttgggaa	aagtagccgc	ttgctacttt	240
aact atg	gaa gag	cag ggc	cac agt	gag atg	gaa ata	289
Met	Glu	Glu	Gln	Gly	His	
1		5		10		15
tct cac	ccc cac	att caa	tta ctg	aaa agc	aat cgg	337
Ser His	Pro His	Ile Gln	Leu Leu	Lys Ser	Asn Arg	
	20			25		30
act cac	atc cgc	aat act	cag tgt	ctg gtg	gac aac	385
Thr His	Ile Arg	Asn Thr	Gln Cys	Leu Val	Asp Asn	
	35		40		45	
gac tac	ttc tcg	gcc gaa	gat gcg	gag att	gtg tgt	433
Asp Tyr	Phe Ser	Ala Glu	Asp Ala	Glu Ile	Val Cys	
	50		55		60	
cag cct	gac aag	gtc cgc	aaa att	ctg gac	ctg gta	481
Gln Pro	Asp Lys	Val Arg	Lys Ile	Leu Asp	Leu Val	
	65		70		75	
gag gag	gtg tcc	gag ttc	ttc ctc	tac ttg	ctc cag	529
Glu Glu	Val Ser	Glu Phe	Phe Leu	Tyr Leu	Leu Gln	
	80		85		90	
gcc tac	gtg gac	ctc agg	cct tgg	ctg ctg	gag atc	577
Ala Tyr	Val Asp	Leu Arg	Pro Trp	Leu Leu	Glu Ile	
	100			105		110
tcc ctg	ctc act	cag agc	aaa gtc	gtg gtc	aac act	625
Ser Leu	Leu Thr	Gln Ser	Lys Val	Val Val	Asn Thr	
	115			120		125

agg tat acc cag cag ctg cga cac cat ctg ggc cgt gac tcc aag ttc Arg Tyr Thr Gln Gln Leu Arg His His Leu Gly Arg Asp Ser Lys Phe 130 135 140	673
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atg gac acc atc atg gag ctg gtt ggc ttc agc aat gag agc ctg ggc Met Asp Thr Ile Met Glu Leu Val Gly Phe Ser Asn Glu Ser Leu Gly 160 165 170 175	769
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aat gag cag ggt gag acc atc ttc atc ctg ggt gat gct ggg gtg ggc Asn Glu Gln Gly Glu Thr Ile Phe Ile Leu Gly Asp Ala Gly Val Gly 195 200 205	865
aag tcc atg ctg cta cag cgg ctg cag agc ctc tgg gcc acg ggc cgg Lys Ser Met Leu Leu Gln Arg Leu Gln Ser Leu Trp Ala Thr Gly Arg 210 215 220	913
cta gac gca ggg gtc aaa ttc ttc ttc cac ttt cgc tgc cgc atg ttc Leu Asp Ala Gly Val Lys Phe Phe Phe His Phe Arg Cys Arg Met Phe 225 230 235	961
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aag cac tac tgc tac cca gag cgg gac ccc gag gag gtg ttt gcc ttc Lys His Tyr Cys Tyr Pro Glu Arg Asp Pro Glu Glu Val Phe Ala Phe 260 265 270	1057
ctg ctg cgc ttc ccc cac gtg gcc ctc ttc acc ttc gat ggc ctg gac Leu Leu Arg Phe Pro His Val Ala Leu Phe Thr Phe Asp Gly Leu Asp 275 280 285	1105
gag ctg cac tcg gac ttg gac ctg agc cgc gtg cct gac agc tcc tgc Glu Leu His Ser Asp Leu Asp Leu Ser Arg Val Pro Asp Ser Ser Cys 290 295 300	1153
ccc tgg gag cct gcc cac ccc ctg gtc ttg ctg gcc aac ctg ctc agt Pro Trp Glu Pro Ala His Pro Leu Val Leu Leu Ala Asn Leu Leu Ser 305 310 315	1201
ggg aag ctg ctc aag ggg gct agc aag ctg ctc aca gcc cgc aca ggc Gly Lys Leu Leu Lys Gly Ala Ser Lys Leu Leu Thr Ala Arg Thr Gly 320 325 330 335	1249
atc gag gtc ccg cgc cag ttc ctg cgg aag aag gtg ctt ctc cgg ggc Ile Glu Val Pro Arg Gln Phe Leu Arg Lys Lys Val Leu Leu Arg Gly 340 345 350	1297
ttc tcc ccc agc cac ctg cgc gcc tat gcc agg agg atg ttc ccc gag Phe Ser Pro Ser His Leu Arg Ala Tyr Ala Arg Arg Met Phe Pro Glu 355 360 365	1345

cgg gcc ctg cag gac cgc ctg ctg agc cag ctg gag gcc aac ccc aac	1393
Arg Ala Leu Gln Asp Arg Leu Ser Gln Leu Glu Ala Asn Pro Asn	
370 375 380	
ctc tgc agc ctg tgc tct gtg ccc ctc ttc tgc tgg atc atc ttc cgg	1441
Leu Cys Ser Leu Cys Ser Val Pro Leu Phe Cys Trp Ile Ile Phe Arg	
385 390 395	
tgc ttc cag cac ttc cgt gct gcc ttt gaa ggc tca cca cag ctg ccc	1489
Cys Phe Gln His Phe Arg Ala Ala Phe Glu Gly Ser Pro Gln Leu Pro	
400 405 410 415	
gac tgc acg atg acc ctg aca gat gtc ttc ctc ctg gtc act gag gtc	1537
Asp Cys Thr Met Thr Leu Thr Asp Val Phe Leu Leu Val Thr Glu Val	
420 425 430	
cat ctg aac agg atg cag ccc agc agc ctg gtg cag cgg aac aca cgc	1585
His Leu Asn Arg Met Gln Pro Ser Ser Leu Val Gln Arg Asn Thr Arg	
435 440 445	
agc cca gtg gag acc ctc cac gcc ggc cgg gac act ctg tgc tcg ctg	1633
Ser Pro Val Glu Thr Leu His Ala Gly Arg Asp Thr Leu Cys Ser Leu	
450 455 460	
ggg cag gtg gcc cac cgg ggc atg gag aag agc ctc ttt gtc ttc acc	1681
Gly Gln Val Ala His Arg Gly Met Glu Lys Ser Leu Phe Val Phe Thr	
465 470 475	
cag gag gag gtg cag gcc tcc ggg ctg cag gag aga gac atg cag ctg	1729
Gln Glu Glu Val Gln Ala Ser Gly Leu Gln Glu Arg Asp Met Gln Leu	
480 485 490 495	
ggc ttc ctg cgg gct ttg ccg gag ctg ggc ccc ggg ggt gac cag cag	1777
Gly Phe Leu Arg Ala Leu Pro Glu Leu Gly Pro Gly Gly Asp Gln Gln	
500 505 510	
tcc tat gag ttt ttc cac ctc acc ctc cag gcc ttc ttt aca gcc ttc	1825
Ser Tyr Glu Phe Phe His Leu Thr Leu Gln Ala Phe Phe Thr Ala Phe	
515 520 525	
ttc ctc gtg ctg gac gac agg gtg ggc act cag gag ctg ctc agg ttc	1873
Phe Leu Val Leu Asp Asp Arg Val Gly Thr Gln Glu Leu Leu Arg Phe	
530 535 540	
ttc cag gag tgg atg ccc cct gcg ggg gca gcg acc acg tcc tgc tat	1921
Phe Gln Glu Trp Met Pro Pro Ala Gly Ala Ala Thr Thr Ser Cys Tyr	
545 550 555	
cct ccc ttc ctc ccg ttc cag tgc ctg cag ggc agt ggt ccg gcg cgg	1969
Pro Pro Phe Leu Pro Phe Gln Cys Leu Gln Gly Ser Gly Pro Ala Arg	
560 565 570 575	
gaa gac ctc ttc aag aac aag gat cac ttc cag ttc acc aac ctc ttc	2017
Glu Asp Leu Phe Lys Asn Lys Asp His Phe Gln Phe Thr Asn Leu Phe	
580 585 590	
ctg tgc ggg ctg ttg tcc aaa gcc aaa cag aaa ctc ctg cgg cat ctg	2065
Leu Cys Gly Leu Leu Ser Lys Ala Lys Gln Lys Leu Leu Arg His Leu	
595 600 605	

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gtg ccc gcg gca gcc ctg agg aga aag cgc aag gcc ctg tgg gca cac Val Pro Ala Ala Ala Leu Arg Arg Lys Arg Lys Ala Leu Trp Ala His 610 615 620	2113
ctg ttt tcc agc ctg cgg ggc tac ctg aag agc ctg ccc cgc gtt cag Leu Phe Ser Ser Leu Arg Gly Tyr Leu Lys Ser Leu Pro Arg Val Gln 625 630 635	2161
gtc gaa agc ttc aac cag gtg cag gcc atg ccc acg ttc atc tgg atg Val Glu Ser Phe Asn Gln Val Gln Ala Met Pro Thr Phe Ile Trp Met 640 645 650 655	2209
ctg cgc tgc atc tac gag aca cag agc cag aag gtg ggg cag ctg gcg Leu Arg Cys Ile Tyr Glu Thr Gln Ser Gln Lys Val Gly Gln Leu Ala 660 665 670	2257
gcc agg ggc atc tgc gcc aac tac ctc aag ctg acc tac tgc aac gcc Ala Arg Gly Ile Cys Ala Asn Tyr Leu Lys Leu Thr Tyr Cys Asn Ala 675 680 685	2305
tgc tgc gcc gac tgc agc gcc ctc tcc ttc gtc ctg cat cac ttc ccc Cys Ser Ala Asp Cys Ser Ala Leu Ser Phe Val Leu His His Phe Pro 690 695 700	2353
aag cgg ctg gcc cta gac cta gac aac aac aat ctc aac gac tac ggc Lys Arg Leu Ala Leu Asp Leu Asp Asn Asn Asn Leu Asn Asp Tyr Gly 705 710 715	2401
gtg cgg gag ctg cag ccc tgc ttc agc cgc ctc act gtt ctc aga ctc Val Arg Glu Leu Gln Pro Cys Phe Ser Arg Leu Thr Val Leu Arg Leu 720 725 730 735	2449
agc gta aac cag atc act gac ggt ggg gta aag gtg cta agc gaa gag Ser Val Asn Gln Ile Thr Asp Gly Gly Val Lys Val Leu Ser Glu Glu 740 745 750	2497
ctg acc aaa tac aaa att gtg acc tat ttg ggt tta tac aac aac cag Leu Thr Lys Tyr Lys Ile Val Thr Tyr Leu Gly Leu Tyr Asn Asn Gln 755 760 765	2545
atc acc gat gtc gga gcc agg tac gtc acc aaa atc ctg gat gaa tgc Ile Thr Asp Val Gly Ala Arg Tyr Val Thr Lys Ile Leu Asp Glu Cys 770 775 780	2593
aaa ggc ctc acg cat ctt aaa ctg gga aaa aac aaa ata aca agt gaa Lys Gly Leu Thr His Leu Lys Leu Gly Lys Asn Lys Ile Thr Ser Glu 785 790 795	2641
gga ggg aag tat ctc gcc ctg gct gtg aag aac agc aaa tca atc tct Gly Gly Lys Tyr Leu Ala Leu Ala Val Lys Asn Ser Lys Ser Ile Ser 800 805 810 815	2689
gag gtt ggg atg tgg ggc aat caa gtt ggg gat gaa gga gca aaa gcc Glu Val Gly Met Trp Gly Asn Gln Val Gly Asp Glu Gly Ala Lys Ala 820 825 830	2737
ttc gca gag gct ctg cgg aac cac ccc agc ttg acc acc ctg agt ctt Phe Ala Glu Ala Leu Arg Asn His Pro Ser Leu Thr Thr Leu Ser Leu 835 840 845	2785

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gcg tcc aac ggc atc tcc aca gaa gga gga aag agc ctt gcg agg gcc Ala Ser Asn Gly Ile Ser Thr Glu Gly Gly Lys Ser Leu Ala Arg Ala 850 855 860	2833
ctg cag cag aac acg tct cta gaa ata ctg tgg ctg acc caa aat gaa Leu Gln Gln Asn Thr Ser Leu Glu Ile Leu Trp Leu Thr Gln Asn Glu 865 870 875	2881
ctc aac gat gaa gtg gca gag agt ttg gca gaa atg ttg aaa gtc aac Leu Asn Asp Glu Val Ala Glu Ser Leu Ala Glu Met Leu Lys Val Asn 880 885 890 895	2929
cag acg tta aag cat tta tgg ctt atc cag aat cag atc aca gct aag Gln Thr Leu Lys His Leu Trp Leu Ile Gln Asn Gln Ile Thr Ala Lys 900 905 910	2977
ggg act gcc cag ctg gca gat gcg tta cag agc aac act ggc ata aca Gly Thr Ala Gln Leu Ala Asp Ala Leu Gln Ser Asn Thr Gly Ile Thr 915 920 925	3025
gag att tgc cta aat gga aac ctg ata aaa cca gag gag gcc aaa gtc Glu Ile Cys Leu Asn Gly Asn Leu Ile Lys Pro Glu Glu Ala Lys Val 930 935 940	3073
tat gaa gat gag aag cgg att atc tgt ttc t gagaggatgc tttcctgttc Tyr Glu Asp Glu Lys Arg Ile Ile Cys Phe 945 950	3124
atgggggtttt tgccctggag cctcagcagc aaatgccact ctgggcagtc ttttgtgtca gtgtcttaaaa ggggcctgcg caggcgggac tatcaggagt ccactgccty catgatgcaa gccagcttcc tgtgcagaag gtctggtcgg caaactccct aagtaccgcg tacaattctg cagaaaaaga atgtgtcttg cgagctgttg tagttacagt aaatacactg tgaagagaaa aaaaaaacgg acgcgtgg	3184 3244 3304 3364 3382

<210> 8

<211> 953

<212> PRT

<213> Homo sapiens

<400> 8

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His Pro His Ile Gln Leu Leu Lys Ser Asn Arg Glu Leu Leu Val Thr 20 25 30
His Ile Arg Asn Thr Gln Cys Leu Val Asp Asn Leu Leu Lys Asn Asp 35 40 45
Tyr Phe Ser Ala Glu Asp Ala Glu Ile Val Cys Ala Cys Pro Thr Gln 50 55 60
Pro Asp Lys Val Arg Lys Ile Leu Asp Leu Val Gln Ser Lys Gly Glu 65 70 75 80
Glu Val Ser Glu Phe Phe Leu Tyr Leu Leu Gln Gln Leu Ala Asp Ala 85 90 95
Tyr Val Asp Leu Arg Pro Trp Leu Leu Glu Ile Gly Phe Ser Pro Ser 100 105 110
Leu Leu Thr Gln Ser Lys Val Val Val Asn Thr Asp Pro Val Ser Arg 115 120 125
Tyr Thr Gln Gln Leu Arg His His Leu Gly Arg Asp Ser Lys Phe Val 130 135 140
Leu Cys Tyr Ala Gln Lys Glu Glu Leu Leu Leu Glu Glu Ile Tyr Met 145 150 155 160
Asp Thr Ile Met Glu Leu Val Gly Phe Ser Asn Glu Ser Leu Gly Ser 165 170 175

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Leu	Asn	Ser	Leu	Ala	Cys	Leu	Leu	Asp	His	Thr	Thr	Gly	Ile	Leu	Asn
			180					185					190		
Glu	Gln	Gly	Glu	Thr	Ile	Phe	Ile	Leu	Gly	Asp	Ala	Gly	Val	Gly	Lys
		195					200					205			
Ser	Met	Leu	Leu	Gln	Arg	Leu	Gln	Ser	Leu	Trp	Ala	Thr	Gly	Arg	Leu
	210					215					220				
Asp	Ala	Gly	Val	Lys	Phe	Phe	Phe	His	Phe	Arg	Cys	Arg	Met	Phe	Ser
225					230					235					240
Cys	Phe	Lys	Glu	Ser	Asp	Arg	Leu	Cys	Leu	Gln	Asp	Leu	Leu	Phe	Lys
				245				250						255	
His	Tyr	Cys	Tyr	Pro	Glu	Arg	Asp	Pro	Glu	Glu	Val	Phe	Ala	Phe	Leu
			260					265					270		
Leu	Arg	Phe	Pro	His	Val	Ala	Leu	Phe	Thr	Phe	Asp	Gly	Leu	Asp	Glu
			275					280					285		
Leu	His	Ser	Asp	Leu	Asp	Leu	Ser	Arg	Val	Pro	Asp	Ser	Ser	Cys	Pro
	290					295					300				
Trp	Glu	Pro	Ala	His	Pro	Leu	Val	Leu	Leu	Ala	Asn	Leu	Leu	Ser	Gly
305					310					315					320
Lys	Leu	Leu	Lys	Gly	Ala	Ser	Lys	Leu	Leu	Thr	Ala	Arg	Thr	Gly	Ile
				325					330					335	
Glu	Val	Pro	Arg	Gln	Phe	Leu	Arg	Lys	Lys	Val	Leu	Leu	Arg	Gly	Phe
			340					345					350		
Ser	Pro	Ser	His	Leu	Arg	Ala	Tyr	Ala	Arg	Arg	Met	Phe	Pro	Glu	Arg
			355				360					365			
Ala	Leu	Gln	Asp	Arg	Leu	Leu	Ser	Gln	Leu	Glu	Ala	Asn	Pro	Asn	Leu
	370					375					380				
Cys	Ser	Leu	Cys	Ser	Val	Pro	Leu	Phe	Cys	Trp	Ile	Ile	Phe	Arg	Cys
385					390					395					400
Phe	Gln	His	Phe	Arg	Ala	Ala	Phe	Glu	Gly	Ser	Pro	Gln	Leu	Pro	Asp
				405					410					415	
Cys	Thr	Met	Thr	Leu	Thr	Asp	Val	Phe	Leu	Leu	Val	Thr	Glu	Val	His
			420					425					430		
Leu	Asn	Arg	Met	Gln	Pro	Ser	Ser	Leu	Val	Gln	Arg	Asn	Thr	Arg	Ser
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Pro	Val	Glu	Thr	Leu	His	Ala	Gly	Arg	Asp	Thr	Leu	Cys	Ser	Leu	Gly
			450			455					460				
Gln	Val	Ala	His	Arg	Gly	Met	Glu	Lys	Ser	Leu	Phe	Val	Phe	Thr	Gln
465					470					475					480
Glu	Glu	Val	Gln	Ala	Ser	Gly	Leu	Gln	Glu	Arg	Asp	Met	Gln	Leu	Gly
				485					490					495	
Phe	Leu	Arg	Ala	Leu	Pro	Glu	Leu	Gly	Pro	Gly	Gly	Asp	Gln	Gln	Ser
			500					505					510		
Tyr	Glu	Phe	Phe	His	Leu	Thr	Leu	Gln	Ala	Phe	Phe	Thr	Ala	Phe	Phe
			515				520					525			
Leu	Val	Leu	Asp	Asp	Arg	Val	Gly	Thr	Gln	Glu	Leu	Leu	Arg	Phe	Phe
			530			535					540				
Gln	Glu	Trp	Met	Pro	Pro	Ala	Gly	Ala	Ala	Thr	Thr	Ser	Cys	Tyr	Pro
545				550						555					560
Pro	Phe	Leu	Pro	Phe	Gln	Cys	Leu	Gln	Gly	Ser	Gly	Pro	Ala	Arg	Glu
				565					570					575	
Asp	Leu	Phe	Lys	Asn	Lys	Asp	His	Phe	Gln	Phe	Thr	Asn	Leu	Phe	Leu
			580					585					590		
Cys	Gly	Leu	Leu	Ser	Lys	Ala	Lys	Gln	Lys	Leu	Leu	Arg	His	Leu	Val
			595				600					605			
Pro	Ala	Ala	Ala	Leu	Arg	Arg	Lys	Arg	Lys	Ala	Leu	Trp	Ala	His	Leu
						615					620				
Phe	Ser	Ser	Leu	Arg	Gly	Tyr	Leu	Lys	Ser	Leu	Pro	Arg	Val	Gln	Val
625					630					635					640
Glu	Ser	Phe	Asn	Gln	Val	Gln	Ala	Met	Pro	Thr	Phe	Ile	Trp	Met	Leu
				645					650					655	
Arg	Cys	Ile	Tyr	Glu	Thr	Gln	Ser	Gln	Lys	Val	Gly	Gln	Leu	Ala	Ala
			660					665					670		

Arg Gly Ile Cys Ala Asn Tyr Leu Lys Leu Thr Tyr Cys Asn Ala Cys
 675 680 685
 Ser Ala Asp Cys Ser Ala Leu Ser Phe Val Leu His His Phe Pro Lys
 690 695 700
 Arg Leu Ala Leu Asp Leu Asp Asn Asn Asn Leu Asn Asp Tyr Gly Val
 705 710 715 720
 Arg Glu Leu Gln Pro Cys Phe Ser Arg Leu Thr Val Leu Arg Leu Ser
 725 730 735
 Val Asn Gln Ile Thr Asp Gly Gly Val Lys Val Leu Ser Glu Glu Leu
 740 745 750
 Thr Lys Tyr Lys Ile Val Thr Tyr Leu Gly Leu Tyr Asn Asn Gln Ile
 755 760 765
 Thr Asp Val Gly Ala Arg Tyr Val Thr Lys Ile Leu Asp Glu Cys Lys
 770 775 780
 Gly Leu Thr His Leu Lys Leu Gly Lys Asn Lys Ile Thr Ser Glu Gly
 785 790 795 800
 Gly Lys Tyr Leu Ala Leu Ala Val Lys Asn Ser Lys Ser Ile Ser Glu
 805 810 815
 Val Gly Met Trp Gly Asn Gln Val Gly Asp Glu Gly Ala Lys Ala Phe
 820 825 830
 Ala Glu Ala Leu Arg Asn His Pro Ser Leu Thr Thr Leu Ser Leu Ala
 835 840 845
 Ser Asn Gly Ile Ser Thr Glu Gly Gly Lys Ser Leu Ala Arg Ala Leu
 850 855 860
 Gln Gln Asn Thr Ser Leu Glu Ile Leu Trp Leu Thr Gln Asn Glu Leu
 865 870 875 880
 Asn Asp Glu Val Ala Glu Ser Leu Ala Glu Met Leu Lys Val Asn Gln
 885 890 895
 Thr Leu Lys His Leu Trp Leu Ile Gln Asn Gln Ile Thr Ala Lys Gly
 900 905 910
 Thr Ala Gln Leu Ala Asp Ala Leu Gln Ser Asn Thr Gly Ile Thr Glu
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 <211> 2859
 <212> DNA
 <213> Homo sapiens

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 gtggacaact tgctgaagaa tgactacttc tccggcgaag atgcggagat tgtgtgtgcc 180
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 gccaggagga tgttccccga gcggggccctg caggaccgcc tgctgagcca gctggaggcc 1140

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<210> 10
 <211> 100
 <212> PRT
 <213> Homo sapiens

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<400> 10
Glu Ser His Pro His Ile Gln Leu Leu Lys Ser Asn Arg Glu Leu Leu
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Val Thr His Ile Arg Asn Thr Gln Cys Leu Val Asp Asn Leu Leu Lys
              20              25              30
Asn Asp Tyr Phe Ser Ala Glu Asp Ala Glu Ile Val Cys Ala Cys Pro
  35              40              45
Thr Gln Pro Asp Lys Val Arg Lys Ile Leu Asp Leu Val Gln Ser Lys
  50              55              60
Gly Glu Glu Val Ser Glu Phe Phe Leu Tyr Leu Leu Gln Gln Leu Ala
  65              70              75              80
Asp Ala Tyr Val Asp Leu Arg Pro Trp Leu Leu Glu Ile Gly Phe Ser
              85              90              95
Pro Ser Leu Leu
              100

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<210> 11
 <211> 200
 <212> PRT
 <213> Homo sapiens

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<400> 11
Ile Phe Ile Leu Gly Asp Ala Gly Val Gly Lys Ser Met Leu Leu Gln
  1              5              10              15
Arg Leu Gln Ser Leu Trp Ala Thr Gly Arg Leu Asp Ala Gly Val Lys
              20              25              30

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Phe	Phe	Phe	His	Phe	Arg	Cys	Arg	Met	Phe	Ser	Cys	Phe	Lys	Glu	Ser
		35					40					45			
Asp	Arg	Leu	Cys	Leu	Gln	Asp	Leu	Leu	Phe	Lys	His	Tyr	Cys	Tyr	Pro
	50					55					60				
Glu	Arg	Asp	Pro	Glu	Glu	Val	Phe	Ala	Phe	Leu	Leu	Arg	Phe	Pro	His
	65				70					75					80
Val	Ala	Leu	Phe	Thr	Phe	Asp	Gly	Leu	Asp	Glu	Leu	His	Ser	Asp	Leu
				85					90					95	
Asp	Leu	Ser	Arg	Val	Pro	Asp	Ser	Ser	Cys	Pro	Trp	Glu	Pro	Ala	His
			100					105					110		
Pro	Leu	Val	Leu	Leu	Ala	Asn	Leu	Leu	Ser	Gly	Lys	Leu	Leu	Lys	Gly
		115					120					125			
Ala	Ser	Lys	Leu	Leu	Thr	Ala	Arg	Thr	Gly	Ile	Glu	Val	Pro	Arg	Gln
	130					135					140				
Phe	Leu	Arg	Lys	Lys	Val	Leu	Leu	Arg	Gly	Phe	Ser	Pro	Ser	His	Leu
	145				150					155					160
Arg	Ala	Tyr	Ala	Arg	Arg	Met	Phe	Pro	Glu	Arg	Ala	Leu	Gln	Asp	Arg
				165					170					175	
Leu	Leu	Ser	Gln	Leu	Glu	Ala	Asn	Pro	Asn	Leu	Cys	Ser	Leu	Cys	Ser
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Val	Pro	Leu	Phe	Cys	Trp	Ile	Ile								
		195					200								

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<210> 12
<211> 8
<212> PRT
<213> Homo sapiens
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<400> 12
Gly Asp Ala Gly Val Gly Lys Ser
1 5

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<210> 13
<211> 5
<212> PRT
<213> Homo sapiens
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<400> 13
Leu Phe Thr Phe Asp
1 5

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<210> 14
<211> 13
<212> PRT
<213> Homo sapiens
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<400> 14
Ala Ser Lys Leu Leu Thr Ala Arg Thr Gly Ile Glu Val
1 5 10

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<210> 15
<211> 28
<212> PRT
<213> Homo sapiens
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<400> 15
Gly Ile Cys Ala Asn Tyr Leu Lys Leu Thr Tyr Cys Asn Ala Cys Ser
  1           5           10           15
Ala Asp Cys Ser Ala Leu Ser Phe Val Leu His His
      20           25

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<210> 16
 <211> 26
 <212> PRT
 <213> Homo sapiens

<400> 16
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 Tyr Gly Val Arg Glu Leu Gln Pro Cys Phe
 20 25

<210> 17
 <211> 27
 <212> PRT
 <213> Homo sapiens

<400> 17
 Ser Arg Leu Thr Val Leu Arg Leu Ser Val Asn Gln Ile Thr Asp Gly
 1 5 10 15
 Gly Val Lys Val Leu Ser Glu Glu Leu Thr Lys
 20 25

<210> 18
 <211> 28
 <212> PRT
 <213> Homo sapiens

<400> 18
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 1 5 10 15
 Val Gly Ala Arg Tyr Val Thr Lys Ile Leu Asp Glu
 20 25

<210> 19
 <211> 28
 <212> PRT
 <213> Homo sapiens

<400> 19
 Cys Lys Gly Leu Thr His Leu Lys Leu Gly Lys Asn Lys Ile Thr Ser
 1 5 10 15
 Glu Gly Gly Lys Tyr Leu Ala Leu Ala Val Lys Asn
 20 25

<210> 20
 <211> 28
 <212> PRT
 <213> Homo sapiens

<400> 20
 Ser Lys Ser Ile Ser Glu Val Gly Met Trp Gly Asn Gln Val Gly Asp
 1 5 10 15
 Glu Gly Ala Lys Ala Phe Ala Glu Ala Leu Arg Asn
 20 25

<210> 21
 <211> 28
 <212> PRT
 <213> Homo sapiens


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<400> 21
His Pro Ser Leu Thr Thr Leu Ser Leu Ala Ser Asn Gly Ile Ser Thr
  1          5          10          15
Glu Gly Gly Lys Ser Leu Ala Arg Ala Leu Gln Gln
      20          25

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<210> 22
<211> 28
<212> PRT
<213> Homo sapiens
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<400> 22
Asn Thr Ser Leu Glu Ile Leu Trp Leu Thr Gln Asn Glu Leu Asn Asp
 1          5          10          15
Glu Val Ala Glu Ser Leu Ala Glu Met Leu Lys Val
      20          25

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<210> 23
<211> 28
<212> PRT
<213> Homo sapiens
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<400> 23
Asn Gln Thr Leu Lys His Leu Trp Leu Ile Gln Asn Gln Ile Thr Ala
 1             5             10             15
Lys Gly Thr Ala Gln Leu Ala Asp Ala Leu Gln Ser
      20             25

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<210> 24
<211> 28
<212> PRT
<213> Homo sapiens
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<400> 24
Asn Thr Gly Ile Thr Glu Ile Cys Leu Asn Gly Asn Leu Ile Lys Pro
 1             5             10             15
Glu Glu Ala Lys Val Tyr Glu Asp Glu Lys Arg Ile
      20             25

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<210> 25
<211> 3080
<212> DNA
<213> Homo sapiens
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<220>  
<221> CDS  
<222> (1)...(1470)
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His Ala Ser Asp Leu Leu Lys Asn Asp Tyr Phe Ser Ala Glu Asp Ala
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gag att gtg tgt gcc tgc ccc acc cag cct gac aag gtc cgc aaa att 96
Glu Ile Val Cys Ala Cys Pro Thr Gln Pro Asp Lys Val Arg Lys Ile
20 25 30

ctg gac ctg gta cag agc aag ggc gag gag gtg tcc gag ttc ttc ctc 144
Leu Asp Leu Val Gln Ser Lys Gly Glu Glu Val Ser Glu Phe Phe Leu
35 40 45

tac	ttg	ctc	cag	caa	ctc	gca	gat	gcc	tac	gtg	gac	ctc	agg	cct	tgg	192
Tyr	Leu	Leu	Gln	Gln	Leu	Ala	Asp	Ala	Tyr	Val	Asp	Leu	Arg	Pro	Trp	
	50					55					60					
ctg	ctg	gag	atc	ggc	ttc	tcc	cct	tcc	ctg	ctc	act	cag	agc	aaa	gtc	240
Leu	Leu	Glu	Ile	Gly	Phe	Ser	Pro	Ser	Leu	Leu	Thr	Gln	Ser	Lys	Val	
65					70				75						80	
gtg	gtc	aac	act	gac	cca	gtg	agc	agg	tat	acc	cag	cag	ctg	cga	cac	288
Val	Val	Asn	Thr	Asp	Pro	Val	Ser	Arg	Tyr	Thr	Gln	Gln	Leu	Arg	His	
				85					90					95		
cat	ctg	ggc	cgt	gac	tcc	aag	ttc	gtg	ctg	tgc	tat	gcc	cag	aag	gag	336
His	Leu	Gly	Arg	Asp	Ser	Lys	Phe	Val	Leu	Cys	Tyr	Ala	Gln	Lys	Glu	
			100					105					110			
gag	ctg	ctg	ctg	gag	gag	atc	tac	atg	gac	acc	atc	atg	gag	ctg	gtt	384
Glu	Leu	Leu	Leu	Glu	Glu	Ile	Tyr	Met	Asp	Thr	Ile	Met	Glu	Leu	Val	
		115					120					125				
ggc	ttc	agc	aat	gag	agc	ctg	ggc	agc	ctg	aac	agc	ctg	gcc	tgc	ctc	432
Gly	Phe	Ser	Asn	Glu	Ser	Leu	Gly	Ser	Leu	Asn	Ser	Leu	Ala	Cys	Leu	
	130					135					140					
ctg	gac	cac	acc	acc	ggc	atc	ctc	aat	gag	cag	ggc	gag	acc	atc	ttc	480
Leu	Asp	His	Thr	Thr	Gly	Ile	Leu	Asn	Glu	Gln	Gly	Glu	Thr	Ile	Phe	
145					150					155					160	
atc	ctg	ggc	gat	gct	ggg	gtg	ggc	aag	tcc	atg	ctg	cta	cag	cgg	ctg	528
Ile	Leu	Gly	Asp	Ala	Gly	Val	Gly	Lys	Ser	Met	Leu	Leu	Gln	Arg	Leu	
				165				170						175		
cag	agc	ctc	tgg	gcc	acg	ggc	cgg	cta	gac	gca	ggg	gtc	aaa	ttc	ttc	576
Gln	Ser	Leu	Trp	Ala	Thr	Gly	Arg	Leu	Asp	Ala	Gly	Val	Lys	Phe	Phe	
			180					185					190			
ttc	cac	ttt	cgc	tgc	cgc	atg	ttc	agc	tgc	ttc	aag	gaa	agt	gac	agg	624
Phe	His	Phe	Arg	Cys	Arg	Met	Phe	Ser	Cys	Phe	Lys	Glu	Ser	Asp	Arg	
		195					200					205				
ctg	tgt	ctg	cag	gac	ctg	ctc	ttc	aag	cac	tac	tgc	tac	cca	gag	cgg	672
Leu	Cys	Leu	Gln	Asp	Leu	Leu	Phe	Lys	His	Tyr	Cys	Tyr	Pro	Glu	Arg	
	210				215						220					
gac	ccc	gag	gag	gtg	ttt	gcc	ttc	ctg	ctg	cgc	ttc	ccc	cac	gtg	gcc	720
Asp	Pro	Glu	Glu	Val	Phe	Ala	Phe	Leu	Leu	Arg	Phe	Pro	His	Val	Ala	
225					230					235					240	
ctc	ttc	acc	ttc	gat	ggc	ctg	gac	gag	ctg	cac	tgc	gac	ttg	gac	ctg	768
Leu	Phe	Thr	Phe	Asp	Gly	Leu	Asp	Glu	Leu	His	Ser	Asp	Leu	Asp	Leu	
				245				250						255		
agc	cgc	gtg	cct	gac	agc	tcc	tgc	ccc	tgg	gag	cct	gcc	cac	ccc	ctg	816
Ser	Arg	Val	Pro	Asp	Ser	Ser	Cys	Pro	Trp	Glu	Pro	Ala	His	Pro	Leu	
			260					265					270			
gtc	ttg	ctg	gcc	aac	ctg	ctc	agt	ggg	aag	ctg	ctc	aag	ggg	gct	agc	864
Val	Leu	Leu	Ala	Asn	Leu	Leu	Ser	Gly	Lys	Leu	Leu	Lys	Gly	Ala	Ser	
		275					280					285				

aag ctg ctc aca gcc cgc aca ggc atc gag gtc ccg cgc cag ttc ctg Lys Leu Leu Thr Ala Arg Thr Gly Ile Glu Val Pro Arg Gln Phe Leu 290 295 300	912
cgg aag aag gtg ctt ctc cgg ggc ttc tcc ccc agc cac ctg cgc gcc Arg Lys Lys Val Leu Arg Gly Phe Ser Pro Ser His Leu Arg Ala 305 310 315 320	960
tat gcc agg agg atg ttc ccc gag cgg gcc ctg cag gac cgc ctg ctg Tyr Ala Arg Arg Met Phe Pro Glu Arg Ala Leu Gln Asp Arg Leu Leu 325 330 335	1008
agc cag ctg gag gcc aac ccc aac ctc tgc agc ctg tgc tct gtg ccc Ser Gln Leu Glu Ala Asn Pro Asn Leu Cys Ser Leu Cys Ser Val Pro 340 345 350	1056
ctc ttc tgc tgg atc atc ttc cgg tgc ttc cag cac ttc cgt gct gcc Leu Phe Cys Trp Ile Ile Phe Arg Cys Phe Gln His Phe Arg Ala Ala 355 360 365	1104
ttt gaa ggc tca cca cag ctg ccc gac tgc acg atg acc ctg aca gat Phe Glu Gly Ser Pro Gln Leu Pro Asp Cys Thr Met Thr Leu Thr Asp 370 375 380	1152
gtc ttc ctc ctg gtc act gag gtc cat ctg aac agg atg cag ccc agc Val Phe Leu Leu Val Thr Glu Val His Leu Asn Arg Met Gln Pro Ser 385 390 395 400	1200
agc ctg gtg cag cgg aac aca cgc agc cca gtg gag acc ctc cac gcc Ser Leu Val Gln Arg Asn Thr Arg Ser Pro Val Glu Thr Leu His Ala 405 410 415	1248
ggc cgg gac act ctg tgc tgc ctg ggg cag gtg gcc cac cgg ggc atg Gly Arg Asp Thr Leu Cys Ser Leu Gly Gln Val Ala His Arg Gly Met 420 425 430	1296
gag aag agc ctc ttt gtc ttc acc cag gag gag gtg cag gcc tcc ggg Glu Lys Ser Leu Phe Val Phe Thr Gln Glu Glu Val Gln Ala Ser Gly 435 440 445	1344
ctg cag gag aga gac atg cag ctg ggc ttc ctg cgg gct ttg ccg gag Leu Gln Glu Arg Asp Met Gln Leu Gly Phe Leu Arg Ala Leu Pro Glu 450 455 460	1392
ctg ggc ccc ggg ggt gac cag cag tcc tat gag ttt ttc cac ctc agc Leu Gly Pro Gly Gly Asp Gln Gln Ser Tyr Glu Phe Phe His Leu Ser 465 470 475 480	1440
ctc ctc acc tgt aaa act ggg atc cca gta tagactttgg aaatcagtag Leu Leu Thr Cys Lys Thr Gly Ile Pro Val 485 490	1490
acaccatatg cttcaaaaaa caggggctat taaaatgaca tcaggagcca gaaagtctca tggctgtgct ttctcttgaa gtttatacaa caaccagatc accgatgtcg gagccagact gggaaaaaac aaaataacaa gtgaaggagg gaagtatctc gccctggctg tgaagaacag caaatcaatc tctgaggttg ggatgtgggg caatcaagtt ggggatgaag gagcaaaagc cttcgcagag gctctgcgga accaccccag cttgaccacc ctgagtcttg cgtccaacgg catctccaca gaaggaggaa agagccttgc gagggccctg cagcagaaca cgtctctaga aatactgtgg ctgacccaaa atgaactcaa cgatgaagtg gcagagagtt tggcagaaat gttgaaaagtc aaccagacgt taaagcattt atggccttgc cagaatcaga tcacagtctt ttgtgtcagt gtcttaaagg ggcctgcgca ggcgggacta tcaggagtcc actgcctcca tgatgcaagc cagcttccctg tgcagaaggt ctgggtcggca aactccctaa gtacccgcta	1550 1610 1670 1730 1790 1850 1910 1970 2030 2090

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<210> 26
 <211> 490
 <212> PRT
 <213> Homo sapiens

<400> 26

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Glu	Ile	Val	Cys	Ala	Cys	Pro	Thr	Gln	Pro	Asp	Lys	Val	Arg	Lys	Ile	20	25	30	
Leu	Asp	Leu	Val	Gln	Ser	Lys	Gly	Glu	Glu	Val	Ser	Glu	Phe	Phe	Leu	35	40	45	
Tyr	Leu	Leu	Gln	Gln	Leu	Ala	Asp	Ala	Tyr	Val	Asp	Leu	Arg	Pro	Trp	50	55	60	
Leu	Leu	Glu	Ile	Gly	Phe	Ser	Pro	Ser	Leu	Leu	Thr	Gln	Ser	Lys	Val	65	70	75	80
Val	Val	Asn	Thr	Asp	Pro	Val	Ser	Arg	Tyr	Thr	Gln	Gln	Leu	Arg	His	85	90	95	
His	Leu	Gly	Arg	Asp	Ser	Lys	Phe	Val	Leu	Cys	Tyr	Ala	Gln	Lys	Glu	100	105	110	
Glu	Leu	Leu	Leu	Glu	Glu	Ile	Tyr	Met	Asp	Thr	Ile	Met	Glu	Leu	Val	115	120	125	
Gly	Phe	Ser	Asn	Glu	Ser	Leu	Gly	Ser	Leu	Asn	Ser	Leu	Ala	Cys	Leu	130	135	140	
Leu	Asp	His	Thr	Thr	Gly	Ile	Leu	Asn	Glu	Gln	Gly	Glu	Thr	Ile	Phe	145	150	155	160
Ile	Leu	Gly	Asp	Ala	Gly	Val	Gly	Lys	Ser	Met	Leu	Leu	Gln	Arg	Leu	165	170	175	
Gln	Ser	Leu	Trp	Ala	Thr	Gly	Arg	Leu	Asp	Ala	Gly	Val	Lys	Phe	Phe	180	185	190	
Phe	His	Phe	Arg	Cys	Arg	Met	Phe	Ser	Cys	Phe	Lys	Glu	Ser	Asp	Arg	195	200	205	
Leu	Cys	Leu	Gln	Asp	Leu	Leu	Phe	Lys	His	Tyr	Cys	Tyr	Pro	Glu	Arg	210	215	220	
Asp	Pro	Glu	Glu	Val	Phe	Ala	Phe	Leu	Leu	Arg	Phe	Pro	His	Val	Ala	225	230	235	240
Leu	Phe	Thr	Phe	Asp	Gly	Leu	Asp	Glu	Leu	His	Ser	Asp	Leu	Asp	Leu	245	250	255	
Ser	Arg	Val	Pro	Asp	Ser	Ser	Cys	Pro	Trp	Glu	Pro	Ala	His	Pro	Leu	260	265	270	
Val	Leu	Leu	Ala	Asn	Leu	Leu	Ser	Gly	Lys	Leu	Leu	Lys	Gly	Ala	Ser	275	280	285	
Lys	Leu	Leu	Thr	Ala	Arg	Thr	Gly	Ile	Glu	Val	Pro	Arg	Gln	Phe	Leu	290	295	300	

Arg Lys Lys Val Leu Leu Arg Gly Phe Ser Pro Ser His Leu Arg Ala
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 Tyr Ala Arg Arg Met Phe Pro Glu Arg Ala Leu Gln Asp Arg Leu Leu
 325 330 335
 Ser Gln Leu Glu Ala Asn Pro Asn Leu Cys Ser Leu Cys Ser Val Pro
 340 345 350
 Leu Phe Cys Trp Ile Ile Phe Arg Cys Phe Gln His Phe Arg Ala Ala
 355 360 365
 Phe Glu Gly Ser Pro Gln Leu Pro Asp Cys Thr Met Thr Leu Thr Asp
 370 375 380
 Val Phe Leu Leu Val Thr Glu Val His Leu Asn Arg Met Gln Pro Ser
 385 390 395 400
 Ser Leu Val Gln Arg Asn Thr Arg Ser Pro Val Glu Thr Leu His Ala
 405 410 415
 Gly Arg Asp Thr Leu Cys Ser Leu Gly Gln Val Ala His Arg Gly Met
 420 425 430
 Glu Lys Ser Leu Phe Val Phe Thr Gln Glu Glu Val Gln Ala Ser Gly
 435 440 445
 Leu Gln Glu Arg Asp Met Gln Leu Gly Phe Leu Arg Ala Leu Pro Glu
 450 455 460
 Leu Gly Pro Gly Gly Asp Gln Gln Ser Tyr Glu Phe Phe His Leu Ser
 465 470 475 480
 Leu Leu Thr Cys Lys Thr Gly Ile Pro Val
 485 490

<210> 27
 <211> 1470
 <212> DNA
 <213> Homo sapiens

<400> 27
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 ctggcctgcc tcctggacca caccaccggc atcctcaatg agcaggggtga gaccatcttc 480
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<210> 28
 <211> 74
 <212> PRT
 <213> Homo sapiens

<400> 28
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 20 25 30
 Leu Asp Leu Val Gln Ser Lys Gly Glu Glu Val Ser Glu Phe Phe Leu
 35 40 45
 Tyr Leu Leu Gln Gln Leu Ala Asp Ala Tyr Val Asp Leu Arg Pro Trp
 50 55 60
 Leu Leu Glu Ile Gly Phe Ser Pro Ser Leu
 65 70

<210> 29
 <211> 8
 <212> PRT
 <213> Homo sapiens

<400> 29
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<210> 30
 <211> 5
 <212> PRT
 <213> Homo sapiens

<400> 30
 Leu Phe Thr Phe Asp
 1 5

<210> 31
 <211> 94
 <212> PRT
 <213> Homo sapiens

<400> 31
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 Val Glu Thr Leu Gln Ala Asp Ser Gly Leu Leu Leu Asp Ala Leu Leu
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 Ala Arg Gly Val Leu Thr Gly Pro Glu Tyr Glu Ala Leu Asp Ala Leu
 35 40 45
 Pro Asp Ala Glu Arg Arg Val Arg Arg Leu Leu Leu Leu Val Gln Gly
 50 55 60
 Lys Gly Glu Ala Ala Cys Gln Glu Leu Leu Arg Cys Ala Gln Arg Thr
 65 70 75 80
 Ala Gly Ala Pro Asp Pro Ala Trp Asp Trp Gln His Val Gly
 85 90

<210> 32
 <211> 89
 <212> PRT
 <213> Homo sapiens

<400> 32
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 Phe Gln Gln Leu Thr Cys Val Leu Pro Ile Leu Asp Asn Leu Leu Lys
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 Ala Asn Val Thr Asn Lys Gln Glu His Asp Ile Ile Lys Gln Lys Thr
 35 40 45

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Gln Ile Pro Leu Gln Ala Arg Glu Leu Ile Asp Thr Ile Trp Val Lys
50 55 60
Gly Asn Ala Ala Ala Asn Ile Phe Lys Asn Cys Leu Lys Glu Ile Asp
65 70 75 80
Ser Thr Leu Tyr Lys Asn Leu Phe Val
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<210> 33
<211> 89
<212> PRT
<213> Homo sapiens

<400> 33
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Phe Gln His Leu Thr Cys Val Ile Pro Ile Leu Asp Ser Leu Leu Thr
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Ala Gly Ile Ile Asn Glu Gln Glu His Asp Val Ile Lys Gln Lys Thr
35 40 45
Gln Thr Ser Leu Gln Ala Arg Glu Leu Ile Asp Thr Ile Leu Val Lys
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Ala Val Leu Tyr Glu His Leu Phe Val
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<210> 34
<211> 24
<212> DNA
<213> Homo sapiens

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24

<210> 35
<211> 18
<212> DNA
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<400> 35
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18

<210> 36
<211> 23
<212> DNA
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<400> 36
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23

<210> 37
<211> 30
<212> DNA
<213> Homo sapiens

<400> 37
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30

<210> 38
<211> 4302
<212> DNA
<213> Homo sapiens

<220>

<221> CDS

<222> (438)...(1184)

<221> misc_feature

<222> (1)...(4302)

<223> n = A,T,C or G

<400> 38

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ccagaaactt aaaaaggggc tgcgcagagt agcagggggc ctggagggcg cggcctgaat      360
cctgattgcc cttctgctga gaggacacac gcagctgaag atgaatttgg gaaaagtagc      420
cgcttgctac tttaact atg gaa gag cag ggc cac agt gag atg gaa ata      470
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                  1                5                10

atc cca tca gag tct cac ccc cac att caa tta ctg aaa agc aat cgg      518
Ile Pro Ser Glu Ser His Pro His Ile Gln Leu Leu Lys Ser Asn Arg
                15                20                25

gaa ctt ctg gtc act cac atc cgc aat act cag tgt ctg gtg gac aac      566
Glu Leu Leu Val Thr His Ile Arg Asn Thr Gln Cys Leu Val Asp Asn
                30                35                40

ttg ctg aag aat gac tac ttc tcg gcc gaa gat gcg gag att gtg tgt      614
Leu Leu Lys Asn Asp Tyr Phe Ser Ala Glu Asp Ala Glu Ile Val Cys
                45                50                55

gcc tgc ccc acc cag cct gac aag gtc cgc aaa att ctg gac ctg gta      662
Ala Cys Pro Thr Gln Pro Asp Lys Val Arg Lys Ile Leu Asp Leu Val
                60                65                70                75

cag agc aag ggc gag gag gtg tcc gag ttc ttc ctc tac ttg ctc cag      710
Gln Ser Lys Gly Glu Glu Val Ser Glu Phe Phe Leu Tyr Leu Leu Gln
                80                85                90

caa ctc gca gat gcc tac gtg gac ctc agg cct tgg ctg ctg gag atc      758
Gln Leu Ala Asp Ala Tyr Val Asp Leu Arg Pro Trp Leu Leu Glu Ile
                95                100                105

ggc ttc tcc cct tcc ctg ctc act cag agc aaa gtc gtg gtc aac act      806
Gly Phe Ser Pro Ser Leu Leu Thr Gln Ser Lys Val Val Val Asn Thr
                110                115                120

gac cca gtg agc agg tat acc cag cag ctg cga cac cat ctg ggc cgt      854
Asp Pro Val Ser Arg Tyr Thr Gln Gln Leu Arg His His Leu Gly Arg
                125                130                135

gac tcc aag ttc gtg ctg tgc tat gcc cag aag gag gag ctg ctg ctg      902
Asp Ser Lys Phe Val Leu Cys Tyr Ala Gln Lys Glu Glu Leu Leu Leu
                140                145                150                155

gag gag atc tac atg gac acc atc atg gag ctg gtt ggc ttc agc aat      950
Glu Glu Ile Tyr Met Asp Thr Ile Met Glu Leu Val Gly Phe Ser Asn
                160                165                170

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gag agc ctg ggc agc ctg aac agc ctg gcc tgc ctc ctg gac cac acc	998
Glu Ser Leu Gly Ser Leu Asn Ser Leu Ala Cys Leu Leu Asp His Thr	
175 180 185	
acc ggc atc ctc aat gag cag gct gct tca agg aaa gtg aca ggc tgt	1046
Thr Gly Ile Leu Asn Glu Gln Ala Ser Arg Lys Val Thr Gly Cys	
190 195 200	
gtc tgc agg acc tgc tct tca agc act act gct acc cag agc ggg acc	1094
Val Cys Arg Thr Cys Ser Ser Ser Thr Thr Ala Thr Gln Ser Gly Thr	
205 210 215	
ccg agg agg tgt ttg cct tcc tgc tgc gct tcc ccc acg tgg ccc tct	1142
Pro Arg Arg Cys Leu Pro Ser Cys Cys Ala Ser Pro Thr Trp Pro Ser	
220 225 230 235	
tca cct tcg atg gcc tgg acg agc tgc act cgg act tgg acc	1184
Ser Pro Ser Met Ala Trp Thr Ser Cys Thr Arg Thr Trp Thr	
240 245	
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ccaacctgct cagtgggaag ctgctcaagg gggctagcaa gctgctcaca gcccgcacag	1304
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aagctgtgag caaacagagg aggccagcct cacctcattc caacacctgc catagggacc	3524
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gtggctgctc	catgaggggtg	ggggtgatac	tactagatca	cttgtcctct	tgccagctca	4244
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 <212> PRT
 <213> Homo sapiens

<400> 39

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			20					25					30		
His	Ile	Arg	Asn	Thr	Gln	Cys	Leu	Val	Asp	Asn	Leu	Leu	Lys	Asn	Asp
		35					40					45			
Tyr	Phe	Ser	Ala	Glu	Asp	Ala	Glu	Ile	Val	Cys	Ala	Cys	Pro	Thr	Gln
	50					55				60					
Pro	Asp	Lys	Val	Arg	Lys	Ile	Leu	Asp	Leu	Val	Gln	Ser	Lys	Gly	Glu
	65				70				75					80	
Glu	Val	Ser	Glu	Phe	Phe	Leu	Tyr	Leu	Leu	Gln	Gln	Leu	Ala	Asp	Ala
			85					90					95		
Tyr	Val	Asp	Leu	Arg	Pro	Trp	Leu	Leu	Glu	Ile	Gly	Phe	Ser	Pro	Ser
		100					105					110			
Leu	Leu	Thr	Gln	Ser	Lys	Val	Val	Val	Asn	Thr	Asp	Pro	Val	Ser	Arg
		115				120					125				
Tyr	Thr	Gln	Gln	Leu	Arg	His	His	Leu	Gly	Arg	Asp	Ser	Lys	Phe	Val
	130					135					140				
Leu	Cys	Tyr	Ala	Gln	Lys	Glu	Glu	Leu	Leu	Leu	Glu	Glu	Ile	Tyr	Met
	145				150				155					160	
Asp	Thr	Ile	Met	Glu	Leu	Val	Gly	Phe	Ser	Asn	Glu	Ser	Leu	Gly	Ser
		165					170						175		
Leu	Asn	Ser	Leu	Ala	Cys	Leu	Leu	Asp	His	Thr	Thr	Gly	Ile	Leu	Asn
		180					185					190			
Glu	Gln	Ala	Ala	Ser	Arg	Lys	Val	Thr	Gly	Cys	Val	Cys	Arg	Thr	Cys
	195					200					205				
Ser	Ser	Ser	Thr	Thr	Ala	Thr	Gln	Ser	Gly	Thr	Pro	Arg	Arg	Cys	Leu
	210					215				220					
Pro	Ser	Cys	Cys	Ala	Ser	Pro	Thr	Trp	Pro	Ser	Ser	Pro	Ser	Met	Ala
	225				230				235					240	
Trp	Thr	Ser	Cys	Thr	Arg	Thr	Trp	Thr							
			245												

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<220>
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 <222> (489)...(980)

<221> misc feature
 <222> (1)...(1400)
 <223> n = A,T,C or G

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gtaaacctgg tggccaagtg attgtaagtc aggagacttt ccttcgggtt ctgcctttga 180
tggcaagagg tggagattgt ggcggcgatt acagaaaaca tctgggaaga caagttgctg 240
tttttatggg aatcgcaggc ttggaagaga cagaagcaat tccagaaata aattggaaat 300
tgaagattta aacaatgttg ttttaaaata ttctaacttc aaagaatgat gccagaaact 360
taaaaagggg ctgcgcagag tagcaggggc cctggagggc gcggcctgaa tcctgattgc 420
ccttctgctg agaggacaca cgcagctgaa gatgaatttg ggaaaagtag ccgcttgcta 480
ctttaact atg gaa gag cag ggc cac agt gag atg gaa ata atc cca tca 530
Met Glu Glu Gln Gly His Ser Glu Met Glu Ile Ile Pro Ser
1 5 10

gag tct cac ccc cac att caa tta ctg aaa agc aat cgg gaa ctt ctg 578
Glu Ser His Pro His Ile Gln Leu Leu Lys Ser Asn Arg Glu Leu Leu
15 20 25 30

gtc act cac atc cgc aat act cag tgt ctg gtg gac aac ttg ctg aag 626
Val Thr His Ile Arg Asn Thr Gln Cys Leu Val Asp Asn Leu Leu Lys
35 40 45

aat gac tac ttc tgc gcc gaa gat gcg gag att gtg tgt gcc tgc ccc 674
Asn Asp Tyr Phe Ser Ala Glu Asp Ala Glu Ile Val Cys Ala Cys Pro
50 55 60

acc cag cct gac aag gtc cgc aaa att ctg gac ctg gta cag agc aag 722
Thr Gln Pro Asp Lys Val Arg Lys Ile Leu Asp Leu Val Gln Ser Lys
65 70 75

ggc gag gag gtg tcc gag ttc ttc ctc tac ttg ctc cag caa ctc gca 770
Gly Glu Glu Val Ser Glu Phe Phe Leu Tyr Leu Leu Gln Gln Leu Ala
80 85 90

gat gcc tac gtg gac ctc agg cct tgg ctg ctg gag atc ggc ttc tcc 818
Asp Ala Tyr Val Asp Leu Arg Pro Trp Leu Leu Glu Ile Gly Phe Ser
95 100 105 110

cct tcc ctg ctc act cag agc aaa gtc gtg gtc aac act gac cca ggt 866
Pro Ser Leu Leu Thr Gln Ser Lys Val Val Val Asn Thr Asp Pro Gly
115 120 125

agg agt cag ccc cag caa gac cgc agg cac cag tgc aag cag ggc cct 914
Arg Ser Gln Pro Gln Gln Asp Arg Arg His Gln Cys Lys Gln Gly Pro
130 135 140

ggg ggg ttt ggt aat ggc tgg gcc agc cct gag tgc cac ctc agg aag 962
Gly Gly Phe Gly Asn Gly Trp Ala Ser Pro Glu Cys His Leu Arg Lys
145 150 155

cag gcc cag gtg cta ttt tgattttaga aaggaacagc tgaatcctgt 1010
Gln Ala Gln Val Leu Phe
160

ctcccaagtg cagcccaggt ggctgcgatt gaactgcccac cacctcgatg gtctgggttta 1070
tagagggggc tttggaagta tgggaatggc ctgtgttctg accccttgct ttcttcctat 1130
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gaggcaagag gactgcttga gccccagagt ctaaggctgc agcgagctat gattgtgccc 1310
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<210> 41
 <211> 164
 <212> PRT
 <213> Homo sapiens

<400> 41
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 His Pro His Ile Gln Leu Leu Lys Ser Asn Arg Glu Leu Leu Val Thr
 20 25 30
 His Ile Arg Asn Thr Gln Cys Leu Val Asp Asn Leu Leu Lys Asn Asp
 35 40 45
 Tyr Phe Ser Ala Glu Asp Ala Glu Ile Val Cys Ala Cys Pro Thr Gln
 50 55 60
 Pro Asp Lys Val Arg Lys Ile Leu Asp Leu Val Gln Ser Lys Gly Glu
 65 70 75 80
 Glu Val Ser Glu Phe Leu Tyr Leu Leu Gln Gln Leu Ala Asp Ala
 85 90 95
 Tyr Val Asp Leu Arg Pro Trp Leu Leu Glu Ile Gly Phe Ser Pro Ser
 100 105 110
 Leu Leu Thr Gln Ser Lys Val Val Val Asn Thr Asp Pro Gly Arg Ser
 115 120 125
 Gln Pro Gln Gln Asp Arg Arg His Gln Cys Lys Gln Gly Pro Gly Gly
 130 135 140
 Phe Gly Asn Gly Trp Ala Ser Pro Glu Cys His Leu Arg Lys Gln Ala
 145 150 155 160
 Gln Val Leu Phe

<210> 42
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 <212> DNA
 <213> Mus musculus

<220>
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 <222> (261)...(3119)

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 ccaaagtccct gccaaacttg gtcagcaatg aaaggcagga tcctgggtgg tggccctgaa 180
 tcctgatttg tctgccctgc cagcgagaca catgtggtca aagatgaatt tgagaaaagt 240
 agctgctggc tacttgaaca atg gag gaa cac ggc cat cat gag atg gaa ggc 293
 Met Glu Glu His Gly His His Glu Met Glu Gly
 1 5 10
 acc cca ttg ggt tgt cac tcc cac att aaa ctg ctg aag atc aac agg 341
 Thr Pro Leu Gly Cys His Ser His Ile Lys Leu Leu Lys Ile Asn Arg
 15 20 25
 gaa cat ctg gtc acc aac att cgg aac act cag tgt ctg gtg gac aac 389
 Glu His Leu Val Thr Asn Ile Arg Asn Thr Gln Cys Leu Val Asp Asn
 30 35 40
 ttg ctg gag aat ggc tac ttc tca gcc gaa gat gca gag att gtg tgt 437
 Leu Leu Glu Asn Gly Tyr Phe Ser Ala Glu Asp Ala Glu Ile Val Cys
 45 50 55
 gcc tgt ccc acc aag cct gac aag gtc cga aag atc ctt gac ctg gtg 485
 Ala Cys Pro Thr Lys Pro Asp Lys Val Arg Lys Ile Leu Asp Leu Val
 60 65 70 75

cag agc aaa ggc gag gag gtg tct gag ttc ttc ctc tac gtg ctg cag	533
Gln Ser Lys Gly Glu Glu Val Ser Glu Phe Phe Leu Tyr Val Leu Gln	
80 85 90	
cag ctg gag gat gct tac gtg gac ctc agg ctg tgg ctc tca gaa att	581
Gln Leu Glu Asp Ala Tyr Val Asp Leu Arg Leu Trp Leu Ser Glu Ile	
95 100 105	
ggc ttc tcc cct tcc cag ctc att cgg acc aaa act atc gtc aat act	629
Gly Phe Ser Pro Ser Gln Leu Ile Arg Thr Lys Thr Ile Val Asn Thr	
110 115 120	
gac cca gta agc agg tat acc caa cag ctg cga cac caa ctg ggc cgc	677
Asp Pro Val Ser Arg Tyr Thr Gln Gln Leu Arg His Gln Leu Gly Arg	
125 130 135	
gac tcc aag ttc atg ctg tgc tac gcc cag aag gag gac ctg ctg ctg	725
Asp Ser Lys Phe Met Leu Cys Tyr Ala Gln Lys Glu Asp Leu Leu Leu	
140 145 150 155	
gag gag acc tat atg gac aca ctc atg ggg ctg gta ggc ttc aac aat	773
Glu Glu Thr Tyr Met Asp Thr Leu Met Gly Leu Val Gly Phe Asn Asn	
160 165 170	
gaa aac ctg ggc agc cta gga ggc ctg gat tgc ctg ctg gac cac agt	821
Glu Asn Leu Gly Ser Leu Gly Gly Leu Asp Cys Leu Leu Asp His Ser	
175 180 185	
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Thr Gly Val Leu Asn Glu His Gly Glu Thr Val Phe Val Phe Gly Asp	
190 195 200	
gcg gga gtg ggc aag tcc atg ctg ctg cag agg ttg cag agc ctc tgg	917
Ala Gly Val Gly Lys Ser Met Leu Leu Gln Arg Leu Gln Ser Leu Trp	
205 210 215	
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Ala Ser Gly Arg Leu Thr Ser Thr Ala Lys Phe Phe Phe His Phe Arg	
220 225 230 235	
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Cys Arg Met Phe Ser Cys Phe Lys Glu Ser Asp Met Leu Ser Leu Gln	
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gac ctg ctc ttc aag cat ttc tgc tac ccg gag cag gac ccc gag gag	1061
Asp Leu Leu Phe Lys His Phe Cys Tyr Pro Glu Gln Asp Pro Glu Glu	
255 260 265	
gtg ttc tcc ttc ttg ctg cgc ttt ccc cac aca gcg ctc ttc act ttt	1109
Val Phe Ser Phe Leu Leu Arg Phe Pro His Thr Ala Leu Phe Thr Phe	
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Asp Gly Leu Asp Glu Leu His Ser Asp Phe Asp Leu Ser Arg Val Pro	
285 290 295	
gat agc tgc tgc ccc tgg gag ccg gct cac cct ctg gtc ctg ctg gct	1205
Asp Ser Cys Cys Pro Trp Glu Pro Ala His Pro Leu Val Leu Leu Ala	
300 305 310 315	

aac ctc cta agt ggg agg ctg ctc aag ggt gcc ggc aaa ttg ctc act	1253
Asn Leu Leu Ser Gly Arg Leu Leu Lys Gly Ala Gly Lys Leu Leu Thr	
320 325 330	
gct cgc aca ggc gtg gag gtc ccc cgc cag ctc ctg cgc aaa aag gtg	1301
Ala Arg Thr Gly Val Glu Val Pro Arg Gln Leu Leu Arg Lys Lys Val	
335 340 345	
ctg ctc cgg ggc ttc tcc cca agt cac ctg cgc gcc tat gcc cgc cgg	1349
Leu Leu Arg Gly Phe Ser Pro Ser His Leu Arg Ala Tyr Ala Arg Arg	
350 355 360	
atg ttc ccc gag cgc aca gcg cag gag cat ctg ctg cag cag ctg gat	1397
Met Phe Pro Glu Arg Thr Ala Gln Glu His Leu Leu Gln Gln Leu Asp	
365 370 375	
gcc aac ccc aac ctc tgc agc ctg tgc ggg gtg ccg ctc ttc tgt tgg	1445
Ala Asn Pro Asn Leu Cys Ser Leu Cys Gly Val Pro Leu Phe Cys Trp	
380 385 390 395	
atc atc ttc cgt tgt ttc cag cac ttc cag acg gtc ttc gag ggc tcc	1493
Ile Ile Phe Arg Cys Phe Gln His Phe Gln Thr Val Phe Glu Gly Ser	
400 405 410	
tct tca cag ttg ccg gac tgt gct gtg acc ctg acc gat gtc ttt ctg	1541
Ser Ser Gln Leu Pro Asp Cys Ala Val Thr Leu Thr Asp Val Phe Leu	
415 420 425	
ctg gtc act gag gtg cat ctg aac agg ccg cag ccc agc agc ctg gtg	1589
Leu Val Thr Glu Val His Leu Asn Arg Pro Gln Pro Ser Ser Leu Val	
430 435 440	
cag cgc aac acg cgc agc ccg gcg gaa acc cta cgt gca ggc tgg cgc	1637
Gln Arg Asn Thr Arg Ser Pro Ala Glu Thr Leu Arg Ala Gly Trp Arg	
445 450 455	
acg ctg cat gcg ctg gga gag gtg gct cac cga ggc acc gac aag agc	1685
Thr Leu His Ala Leu Gly Glu Val Ala His Arg Gly Thr Asp Lys Ser	
460 465 470 475	
ctc ttt gtg ttt ggc cag gag gag gtg cag gcg tcg aag ctg cag gaa	1733
Leu Phe Val Phe Gly Gln Glu Glu Val Gln Ala Ser Lys Leu Gln Glu	
480 485 490	
gga gat ctg cag ctg ggc ttc ctg cgg gct ttg ccc gat gtg ggc cct	1781
Gly Asp Leu Gln Leu Gly Phe Leu Arg Ala Leu Pro Asp Val Gly Pro	
495 500 505	
gag cag ggc cag tct tac gaa ttt ttc cac ctt acg ctc cag gcc ttc	1829
Glu Gln Gly Gln Ser Tyr Glu Phe Phe His Leu Thr Leu Gln Ala Phe	
510 515 520	
ttc acc gcc ttc ttc ctg gta gca gat gac aaa gtg agc acc cgg gag	1877
Phe Thr Ala Phe Phe Leu Val Ala Asp Asp Lys Val Ser Thr Arg Glu	
525 530 535	
ttg ctg agg ttc ttt cga gaa tgg acg tct cct gga gag gca aca agc	1925
Leu Leu Arg Phe Phe Arg Glu Trp Thr Ser Pro Gly Glu Ala Thr Ser	
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agc cgg ttg ggc cct gat cct ttc agg aac aaa gat cac ttc cag ttc Ser Arg Leu Gly Pro Asp Pro Phe Arg Asn Lys Asp His Phe Gln Phe 575 580 585	2021
acc aac ctc ttc gtg tgc ggg cta ctg gcc aaa gcc cga cag aaa ctc Thr Asn Leu Phe Val Cys Gly Leu Leu Ala Lys Ala Arg Gln Lys Leu 590 595 600	2069
ctt cgg cag ctg gtg ccc aag gct atc ctg agg agg aag cgc aag gcc Leu Arg Gln Leu Val Pro Lys Ala Ile Leu Arg Arg Lys Arg Lys Ala 605 610 615	2117
ctg tgg gct cac ctg ttt gct agc ctg cgc tcc tac ttg aag agc cta Leu Trp Ala His Leu Phe Ala Ser Leu Arg Ser Tyr Leu Lys Ser Leu 620 625 630 635	2165
cct cgg gtc cag tct gga ggc ttt aac cag gtg cat gcc atg ccc aca Pro Arg Val Gln Ser Gly Gly Phe Asn Gln Val His Ala Met Pro Thr 640 645 650	2213
ttc ctg tgg atg ctg cgc tgc atc tat gag acg cag agc cag aag gtg Phe Leu Trp Met Leu Arg Cys Ile Tyr Glu Thr Gln Ser Gln Lys Val 655 660 665	2261
ggg cgc ctc gcc gcc agg ggc atc agt gcg gac tac ctc aag ctg gcc Gly Arg Leu Ala Ala Arg Gly Ile Ser Ala Asp Tyr Leu Lys Leu Ala 670 675 680	2309
ttt tgc aac gct tgc tct gcg gac tgc agc gcc ctg tcc ttc gtc ctg Phe Cys Asn Ala Cys Ser Ala Asp Cys Ser Ala Leu Ser Phe Val Leu 685 690 695	2357
cat cac ttc cac agg cag ctg gcc cta gac ctg gac aac aac aac ctc His His Phe His Arg Gln Leu Ala Leu Asp Leu Asp Asn Asn Asn Leu 700 705 710 715	2405
aat gac tat ggc gtg cag gag ctg cag cct tgc ttt agc cgt ctc acg Asn Asp Tyr Gly Val Gln Glu Leu Gln Pro Cys Phe Ser Arg Leu Thr 720 725 730	2453
gtt atc aga ctc agc gtc aac cag atc acc gac acg ggg gtg aag gtg Val Ile Arg Leu Ser Val Asn Gln Ile Thr Asp Thr Gly Val Lys Val 735 740 745	2501
cta tgt gag gaa ctg acc aag tat aag atc gtg acg ttc ctg ggt tta Leu Cys Glu Glu Leu Thr Lys Tyr Lys Ile Val Thr Phe Leu Gly Leu 750 755 760	2549
tac aac aac cag ata act gat atc gga gcc agg tat gtg gcc caa atc Tyr Asn Asn Gln Ile Thr Asp Ile Gly Ala Arg Tyr Val Ala Gln Ile 765 770 775	2597
ctg gat gaa tgc aga ggc ctc aag cac ctt aaa cta ggg aaa aac aga Leu Asp Glu Cys Arg Gly Leu Lys His Leu Lys Leu Gly Lys Asn Arg 780 785 790 795	2645

ata aca agt gag ggc ggg aag tgt gtg gct ttg gct gtg aag aac agc Ile Thr Ser Glu Gly Lys Cys Val Ala Leu Ala Val Lys Asn Ser 800 805 810	2693
acc tcc atc gtt gat gtt ggg atg tgg ggt aat cag att gga gac gaa Thr Ser Ile Val Asp Val Gly Met Trp Gly Asn Gln Ile Gly Asp Glu 815 820 825	2741
ggg gca aag gcc ttc gca gag gca ttg aag gac cac ccc agc ctg acc Gly Ala Lys Ala Phe Ala Glu Ala Leu Lys Asp His Pro Ser Leu Thr 830 835 840	2789
act ctc agt ctt gca ttc aat ggc atc tct ccg gag gga ggg aag agc Thr Leu Ser Leu Ala Phe Asn Gly Ile Ser Pro Glu Gly Gly Lys Ser 845 850 855	2837
ctt gcg cag gcc ctg aag cag aac acc aca ctg aca gta atc tgg ctg Leu Ala Gln Ala Leu Lys Gln Asn Thr Thr Leu Thr Val Ile Trp Leu 860 865 870 875	2885
acc aaa aat gaa ctt aat gat gag tct gca gag tgc ttc gct gag atg Thr Lys Asn Glu Leu Asn Asp Glu Ser Ala Glu Cys Phe Ala Glu Met 880 885 890	2933
ctg aga gtg aac cag acg cta cgg cat tta tgg ctg atc cag aat cgc Leu Arg Val Asn Gln Thr Leu Arg His Leu Trp Leu Ile Gln Asn Arg 895 900 905	2981
atc aca gcc aag ggg aca gcg cag ctg gcg agg gca ctg cag aag aac Ile Thr Ala Lys Gly Thr Ala Gln Leu Ala Arg Ala Leu Gln Lys Asn 910 915 920	3029
aca gcc ata aca gag att tgt ctc aat gga aac ttg att aag ccc gag Thr Ala Ile Thr Glu Ile Cys Leu Asn Gly Asn Leu Ile Lys Pro Glu 925 930 935	3077
gag gcc aaa gtc ttc gag aat gag aag aga atc atc tgc ttc Glu Ala Lys Val Phe Glu Asn Glu Lys Arg Ile Ile Cys Phe 940 945 950	3119
tgacggacgc tccctgggcag gatctttgtc ctaggttgct cctcagtcac agacagcact gtgcagtcag cagggttagca ggatgctgtg cagcgctgc agcaagggtgc ctgtcaggag cccacacctc cacagtgcac accgatgtcc cctgctcatg cttggactgg tagcaccgcg gccgcggctg agaccctgca gacgcaggga gtcttaggaa ccatcgtcac cactcaaagc cagcagggca tcttctgtac aaagatctcc ctgcataatcc actagacgga agctgaagga acgcaacagc agaggaggcc aacagacgcc tggctgaagg ctccgtggga ccaacggtgt caccttcaga aaagagctgg gaacttgagc agagccgatg gtaacttctt ggggaaagaa ggcaccagct gactgcaagg ttattctgag tcctccttcc tctgcttagt cctctcact gtacaggtct gtttcttct cgcagctgtg gctgctgaag taggtccact gtggggagag ctcatcacag acttttggttc ggttctggat tctcagtggt ggcaaccgag agtcagacga taccctctag gtcagtctca gaggatctct atgctgtgag aggggtgagg gccacccag aatttttttt ttttaccagt ttttactgtg cctgccccag gagggagaat tacttcccag cctccacagc agcaggcatg gcttgccctca atggtcctga gatcccaaca aaactctctc ccttgccctgt gaggagaaag tatcttcatg tcctcagaag ttggagggtg actggacaca gttaagactc agagagccag ctgatagctc aaagcaaagc atggcacata cccaccacca taccatggtg cgcagggat gggacagttg gaatgttgca gataacgtgt tcttttgcca gttcatttgt taataaaata tttaaaacgt taaaaaaaaa aaaaaaaaaa aaaaaagggc gg	3179 3239 3299 3359 3419 3479 3539 3599 3659 3719 3779 3839 3899 3959 4019 4079 4139 4141

<210> 43

<211> 953

<212> PRT
 <213> Mus musculus

<400> 43

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His	Ser	His	Ile	Lys	Leu	Leu	Lys	Ile	Asn	Arg	Glu	His	Leu	Val	Thr
			20					25					30		
Asn	Ile	Arg	Asn	Thr	Gln	Cys	Leu	Val	Asp	Asn	Leu	Leu	Glu	Asn	Gly
		35					40					45			
Tyr	Phe	Ser	Ala	Glu	Asp	Ala	Glu	Ile	Val	Cys	Ala	Cys	Pro	Thr	Lys
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Pro	Asp	Lys	Val	Arg	Lys	Ile	Leu	Asp	Leu	Val	Gln	Ser	Lys	Gly	Glu
65					70					75					80
Glu	Val	Ser	Glu	Phe	Phe	Leu	Tyr	Val	Leu	Gln	Gln	Leu	Glu	Asp	Ala
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Tyr	Val	Asp	Leu	Arg	Leu	Trp	Leu	Ser	Glu	Ile	Gly	Phe	Ser	Pro	Ser
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Gln	Leu	Ile	Arg	Thr	Lys	Thr	Ile	Val	Asn	Thr	Asp	Pro	Val	Ser	Arg
		115					120					125			
Tyr	Thr	Gln	Gln	Leu	Arg	His	Gln	Leu	Gly	Arg	Asp	Ser	Lys	Phe	Met
	130					135					140				
Leu	Cys	Tyr	Ala	Gln	Lys	Glu	Asp	Leu	Leu	Leu	Glu	Glu	Thr	Tyr	Met
145					150					155					160
Asp	Thr	Leu	Met	Gly	Leu	Val	Gly	Phe	Asn	Asn	Glu	Asn	Leu	Gly	Ser
			165						170					175	
Leu	Gly	Gly	Leu	Asp	Cys	Leu	Leu	Asp	His	Ser	Thr	Gly	Val	Leu	Asn
			180					185					190		
Glu	His	Gly	Glu	Thr	Val	Phe	Val	Phe	Gly	Asp	Ala	Gly	Val	Gly	Lys
		195					200					205			
Ser	Met	Leu	Leu	Gln	Arg	Leu	Gln	Ser	Leu	Trp	Ala	Ser	Gly	Arg	Leu
	210					215					220				
Thr	Ser	Thr	Ala	Lys	Phe	Phe	Phe	His	Phe	Arg	Cys	Arg	Met	Phe	Ser
225					230					235					240
Cys	Phe	Lys	Glu	Ser	Asp	Met	Leu	Ser	Leu	Gln	Asp	Leu	Leu	Phe	Lys
			245						250					255	
His	Phe	Cys	Tyr	Pro	Glu	Gln	Asp	Pro	Glu	Glu	Val	Phe	Ser	Phe	Leu
		260						265					270		
Leu	Arg	Phe	Pro	His	Thr	Ala	Leu	Phe	Thr	Phe	Asp	Gly	Leu	Asp	Glu
		275					280					285			
Leu	His	Ser	Asp	Phe	Asp	Leu	Ser	Arg	Val	Pro	Asp	Ser	Cys	Cys	Pro
	290					295					300				
Trp	Glu	Pro	Ala	His	Pro	Leu	Val	Leu	Leu	Ala	Asn	Leu	Leu	Ser	Gly
305					310					315					320
Arg	Leu	Leu	Lys	Gly	Ala	Gly	Lys	Leu	Leu	Thr	Ala	Arg	Thr	Gly	Val
			325						330					335	
Glu	Val	Pro	Arg	Gln	Leu	Leu	Arg	Lys	Lys	Val	Leu	Leu	Arg	Gly	Phe
			340					345					350		
Ser	Pro	Ser	His	Leu	Arg	Ala	Tyr	Ala	Arg	Arg	Met	Phe	Pro	Glu	Arg
		355					360					365			
Thr	Ala	Gln	Glu	His	Leu	Leu	Gln	Gln	Leu	Asp	Ala	Asn	Pro	Asn	Leu
	370					375					380				
Cys	Ser	Leu	Cys	Gly	Val	Pro	Leu	Phe	Cys	Trp	Ile	Ile	Phe	Arg	Cys
385					390					395					400
Phe	Gln	His	Phe	Gln	Thr	Val	Phe	Glu	Gly	Ser	Ser	Ser	Gln	Leu	Pro
			405						410					415	
Asp	Cys	Ala	Val	Thr	Leu	Thr	Asp	Val	Phe	Leu	Leu	Val	Thr	Glu	Val
			420					425					430		
His	Leu	Asn	Arg	Pro	Gln	Pro	Ser	Ser	Leu	Val	Gln	Arg	Asn	Thr	Arg
		435					440					445			
Ser	Pro	Ala	Glu	Thr	Leu	Arg	Ala	Gly	Trp	Arg	Thr	Leu	His	Ala	Leu
	450					455					460				

Gly 465	Glu	Val	Ala	His	Arg 470	Gly	Thr	Asp	Lys	Ser 475	Leu	Phe	Val	Phe	Gly 480
Gln	Glu	Glu	Val	Gln 485	Ala	Ser	Lys	Leu	Gln 490	Glu	Gly	Asp	Leu	Gln 495	Leu
Gly	Phe	Leu	Arg 500	Ala	Leu	Pro	Asp	Val 505	Gly	Pro	Glu	Gln	Gly 510	Gln	Ser
Tyr	Glu	Phe 515	Phe	His	Leu	Thr	Leu 520	Gln	Ala	Phe	Phe	Thr 525	Ala	Phe	Phe
Leu	Val 530	Ala	Asp	Asp	Lys	Val 535	Ser	Thr	Arg	Glu	Leu 540	Leu	Arg	Phe	Phe
Arg 545	Glu	Trp	Thr	Ser	Pro 550	Gly	Glu	Ala	Thr	Ser 555	Ser	Ser	Cys	His	Ser 560
Ser	Phe	Phe	Ser	Phe 565	Gln	Cys	Leu	Gly	Gly 570	Arg	Ser	Arg	Leu	Gly 575	Pro
Asp	Pro	Phe	Arg 580	Asn	Lys	Asp	His	Phe 585	Gln	Phe	Thr	Asn	Leu 590	Phe	Val
Cys	Gly	Leu 595	Leu	Ala	Lys	Ala	Arg 600	Gln	Lys	Leu	Leu	Arg 605	Gln	Leu	Val
Pro	Lys 610	Ala	Ile	Leu	Arg	Arg 615	Lys	Arg	Lys	Ala	Leu 620	Trp	Ala	His	Leu
Phe 625	Ala	Ser	Leu	Arg	Ser 630	Tyr	Leu	Lys	Ser	Leu 635	Pro	Arg	Val	Gln	Ser 640
Gly	Gly	Phe	Asn 645	Gln	Val	His	Ala	Met	Pro 650	Thr	Phe	Leu	Trp	Met 655	Leu
Arg	Cys	Ile	Tyr 660	Glu	Thr	Gln	Ser	Gln 665	Lys	Val	Gly	Arg	Leu 670	Ala	Ala
Arg	Gly 675	Ile	Ser	Ala	Asp	Tyr	Leu 680	Lys	Leu	Ala	Phe	Cys 685	Asn	Ala	Cys
Ser	Ala 690	Asp	Cys	Ser	Ala	Leu 695	Ser	Phe	Val	Leu	His 700	His	Phe	His	Arg
Gln 705	Leu	Ala	Leu	Asp	Leu 710	Asp	Asn	Asn	Asn	Leu 715	Asn	Asp	Tyr	Gly	Val 720
Gln	Glu	Leu	Gln 725	Pro	Cys	Phe	Ser	Arg	Leu 730	Thr	Val	Ile	Arg	Leu 735	Ser
Val	Asn	Gln	Ile 740	Thr	Asp	Thr	Gly	Val 745	Lys	Val	Leu	Cys	Glu 750	Glu	Leu
Thr	Lys	Tyr 755	Lys	Ile	Val	Thr	Phe 760	Leu	Gly	Leu	Tyr	Asn 765	Asn	Gln	Ile
Thr	Asp 770	Ile	Gly	Ala	Arg	Tyr 775	Val	Ala	Gln	Ile	Leu 780	Asp	Glu	Cys	Arg
Gly 785	Leu	Lys	His	Leu	Lys 790	Leu	Gly	Lys	Asn	Arg 795	Ile	Thr	Ser	Glu	Gly 800
Gly	Lys	Cys	Val 805	Ala	Leu	Ala	Val	Lys	Asn 810	Ser	Thr	Ser	Ile	Val	Asp
Val	Gly	Met	Trp 820	Gly	Asn	Gln	Ile	Gly 825	Asp	Glu	Gly	Ala	Lys 830	Ala	Phe
Ala	Glu	Ala 835	Leu	Lys	Asp	His	Pro 840	Ser	Leu	Thr	Thr	Leu 845	Ser	Leu	Ala
Phe	Asn 850	Gly	Ile	Ser	Pro	Glu 855	Gly	Gly	Lys	Ser	Leu 860	Ala	Gln	Ala	Leu
Lys 865	Gln	Asn	Thr	Thr	Leu 870	Thr	Val	Ile	Trp	Leu 875	Thr	Lys	Asn	Glu	Leu 880
Asn	Asp	Glu	Ser 885	Ala	Glu	Cys	Phe	Ala	Glu 890	Met	Leu	Arg	Val	Asn 895	Gln
Thr	Leu	Arg	His 900	Leu	Trp	Leu	Ile	Gln 905	Asn	Arg	Ile	Thr	Ala 910	Lys	Gly
Thr	Ala	Gln 915	Leu	Ala	Arg	Ala	Leu 920	Gln	Lys	Asn	Thr	Ala 925	Ile	Thr	Glu
Ile	Cys 930	Leu	Asn	Gly	Asn	Leu 935	Ile	Lys	Pro	Glu	Glu 940	Ala	Lys	Val	Phe
Glu 945	Asn	Glu	Lys	Arg	Ile 950	Ile	Cys	Phe							

<210> 44
 <211> 19
 <212> DNA
 <213> Homo sapiens

<400> 44
 agaaggtctg gtcggcaaa

19

<210> 45
 <211> 18
 <212> DNA
 <213> Homo sapiens

<400> 45
 aagccctgag tggaagca

18

<210> 46
 <211> 86
 <212> PRT
 <213> Homo sapiens

<400> 46
 Ser Arg Tyr Thr Gln Gln Leu Arg His His Leu Gly Arg Asp Ser Lys
 1 5 10 15
 Phe Val Leu Cys Tyr Ala Gln Lys Glu Leu Leu Leu Glu Glu Ile
 20 25 30
 Tyr Met Asp Thr Ile Met Glu Leu Val Gly Phe Ser Asn Glu Ser Leu
 35 40 45
 Gly Ser Leu Asn Ser Leu Ala Cys Leu Leu Asp His Thr Thr Gly Ile
 50 55 60
 Leu Asn Glu Gln Gly Glu Thr Ile Phe Ile Leu Gly Asp Ala Gly Val
 65 70 75 80
 Gly Lys Ser Met Leu Leu
 85

<210> 47
 <211> 16
 <212> PRT
 <213> Homo sapiens

<400> 47
 Tyr Cys Tyr Pro Glu Arg Asp Pro Glu Glu Val Phe Ala Phe Leu Leu
 1 5 10 15

<210> 48
 <211> 740
 <212> DNA
 <213> Homo sapiens.

<220>
 <221> CDS
 <222> (54)...(638)

<400> 48
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 Met
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56

ggg cgc gcg cgc gac gcc atc ctg gat gcg ctg gag aac ctg acc gcc
 Gly Arg Ala Arg Asp Ala Ile Leu Asp Ala Leu Glu Asn Leu Thr Ala
 5 10 15

104

gag gag ctc aag aag ttc aag ctg aag ctg ctg tcg gtg ccg ctg cgc 152
 Glu Glu Leu Lys Lys Phe Lys Leu Lys Leu Leu Ser Val Pro Leu Arg
 20 25 30

gag ggc tac ggg cgc atc ccg cgg ggc gcg ctg ctg tcc atg gac gcc 200
 Glu Gly Tyr Gly Arg Ile Pro Arg Gly Ala Leu Leu Ser Met Asp Ala
 35 40 45

ttg gac ctc acc gac aag ctg gtc agc ttc tac ctg gag acc tac ggc 248
 Leu Asp Leu Thr Asp Lys Leu Val Ser Phe Tyr Leu Glu Thr Tyr Gly
 50 55 60 65

gcc gag ctc acc gct aac gtg ctg cgc gac atg ggc ctg cag gag atg 296
 Ala Glu Leu Thr Ala Asn Val Leu Arg Asp Met Gly Leu Gln Glu Met
 70 75 80

gcc ggg cag ctg cag gcg gcc acg cac cag ggc tct gga gcc gcg cca 344
 Ala Gly Gln Leu Gln Ala Ala Thr His Gln Gly Ser Gly Ala Ala Pro
 85 90 95

gct ggg atc cag gcc cct cct cag tcg gca gcc aag cca ggc ctg cac 392
 Ala Gly Ile Gln Ala Pro Pro Gln Ser Ala Ala Lys Pro Gly Leu His
 100 105 110

ttt ata gac cag cac cgg gct gcg ctt atc gcg agg gtc aca aac gtt 440
 Phe Ile Asp Gln His Arg Ala Ala Leu Ile Ala Arg Val Thr Asn Val
 115 120 125

gag tgg ctg ctg gat gct ctg tac ggg aag gtc ctg acg gat gag cag 488
 Glu Trp Leu Leu Asp Ala Leu Tyr Gly Lys Val Leu Thr Asp Glu Gln
 130 135 140 145

tac cag gca gtg cgg gcc gag ccc acc aac cca agc aag atg cgg aag 536
 Tyr Gln Ala Val Arg Ala Glu Pro Thr Asn Pro Ser Lys Met Arg Lys
 150 155 160

ctc ttc agt ttc aca cca gcc tgg aac tgg acc tgc aag gac ttg ctc 584
 Leu Phe Ser Phe Thr Pro Ala Trp Asn Trp Thr Cys Lys Asp Leu Leu
 165 170 175

ctc cag gcc cta agg gag tcc cag tcc tac ctg gtg gag gac ctg gag 632
 Leu Gln Ala Leu Arg Glu Ser Gln Ser Tyr Leu Val Glu Asp Leu Glu
 180 185 190

cgg agc tgaggctcct tcccagcaac actccgggtca gcccttgga atcccaccaa 688
 Arg Ser
 195

atcatcctga atctgatctt tttatacaca atatacgaaa agccagcttg aa 740

<210> 49
 <211> 195
 <212> PRT
 <213> Homo sapiens

<400> 49
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 20 25 30
 Arg Glu Gly Tyr Gly Arg Ile Pro Arg Gly Ala Leu Leu Ser Met Asp
 35 40 45

Ala Leu Asp Leu Thr Asp Lys Leu Val Ser Phe Tyr Leu Glu Thr Tyr
 50 55 60
 Gly Ala Glu Leu Thr Ala Asn Val Leu Arg Asp Met Gly Leu Gln Glu
 65 70 75 80
 Met Ala Gly Gln Leu Gln Ala Ala Thr His Gln Gly Ser Gly Ala Ala
 85 90 95
 Pro Ala Gly Ile Gln Ala Pro Pro Gln Ser Ala Ala Lys Pro Gly Leu
 100 105 110
 His Phe Ile Asp Gln His Arg Ala Ala Leu Ile Ala Arg Val Thr Asn
 115 120 125
 Val Glu Trp Leu Leu Asp Ala Leu Tyr Gly Lys Val Leu Thr Asp Glu
 130 135 140
 Gln Tyr Gln Ala Val Arg Ala Glu Pro Thr Asn Pro Ser Lys Met Arg
 145 150 155 160
 Lys Leu Phe Ser Phe Thr Pro Ala Trp Asn Trp Thr Cys Lys Asp Leu
 165 170 175
 Leu Leu Gln Ala Leu Arg Glu Ser Gln Ser Tyr Leu Val Glu Asp Leu
 180 185 190
 Glu Arg Ser
 195

<210> 50
 <211> 585
 <212> DNA
 <213> Homo sapiens

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 aagaagttca agctgaagct gctgtcgggt ccgctgcgcg agggctacgg gcgcatccccg 120
 cggggcgcgc tgctgtccat ggacgccttg gacctaccg acaagctggg cagcttctac 180
 ctggagacct acggcgccga gctcaccgct aacgtgctgc gcgacatggg cctgcaggag 240
 atggccgggc agctgcaggc ggccacgcac cagggtcttg gagccgcgcc agctgggatc 300
 caggcccttc ctcagtcggc agccaagcca ggctgcact ttatagacca gcaccggggt 360
 gcgcttatcg cgagggtcac aaacgttgag tggctgctgg atgctctgta cgggaagggtc 420
 ctgacggatg agcagtacca ggcaagtgcg gccgagccca ccaacccaag caagatgcgg 480
 aagctcttca gtttcacacc agcctggaac tggacctgca aggacttgct cctccaggcc 540
 ctaaggaggat ccagtccta cctggtggag gacctggagc ggagc 585

<210> 51
 <211> 5252
 <212> DNA
 <213> Rattus rattus

<220>
 <221> CDS
 <222> (169)...(2883)

<400> 51
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 ttttggcatg ttttatcttt gctaagtagg atttctgtct ttctttgtta acacagattt 120
 ctttctgtgc cagaatgacc tgatccattt cctggtttgt agaaagcc atg gct tca 177
 Met Ala Ser
 1

gag ggt gct tcc tca gaa atc ata gaa aaa cag cga aca aag ttg ctc 225
 Glu Gly Ala Ser Ser Glu Ile Ile Glu Lys Gln Arg Thr Lys Leu Leu
 5 10 15

agt gtc ctc caa caa gat ccc gac tct atc ttg gac acg tta acc tct 273
 Ser Val Leu Gln Gln Asp Pro Asp Ser Ile Leu Asp Thr Leu Thr Ser
 20 25 30 35

cgg	aga	ctg	att	tct	gag	gag	gag	tat	gag	act	cta	gag	gca	att	aca	321
Arg	Arg	Leu	Ile	Ser	Glu	Glu	Glu	Tyr	Glu	Thr	Leu	Glu	Ala	Ile	Thr	
				40					45					50		
gat	cct	ctg	aag	aaa	agc	cgg	aag	ctg	tta	att	ttg	atc	cag	aag	aag	369
Asp	Pro	Leu	Lys	Lys	Ser	Arg	Lys	Leu	Leu	Ile	Leu	Ile	Gln	Lys	Lys	
			55					60					65			
gga	gag	gac	agc	tgt	tgt	tgt	ttc	ctc	aag	tgt	ctg	tct	aat	gcc	ttt	417
Gly	Glu	Asp	Ser	Cys	Cys	Cys	Phe	Leu	Lys	Cys	Leu	Ser	Asn	Ala	Phe	
		70					75					80				
cca	cag	tca	gct	tcc	acc	ttg	ggt	tta	aag	cag	gaa	gtt	cca	cgg	cag	465
Pro	Gln	Ser	Ala	Ser	Thr	Leu	Gly	Leu	Lys	Gln	Glu	Val	Pro	Arg	Gln	
	85					90					95					
ggg	act	gga	gag	gtt	gtc	gag	gtg	agc	agg	ggt	ttg	gaa	gat	ccc	ttt	513
Gly	Thr	Gly	Glu	Val	Val	Glu	Val	Ser	Arg	Gly	Leu	Glu	Asp	Pro	Phe	
100					105					110					115	
tct	ctt	ggg	acc	ata	acc	cca	gaa	ata	gca	gag	ctc	tca	gaa	gag	aaa	561
Ser	Leu	Gly	Thr	Ile	Thr	Pro	Glu	Ile	Ala	Glu	Leu	Ser	Glu	Glu	Lys	
				120					125					130		
gaa	tgc	ccg	ggt	ctg	gga	gct	ccg	gag	ttc	ttc	acc	tgc	aag	gaa	agc	609
Glu	Cys	Pro	Gly	Leu	Gly	Ala	Pro	Glu	Phe	Phe	Thr	Cys	Lys	Glu	Ser	
			135					140					145			
agc	cac	agg	gaa	ccg	gaa	gta	cct	tct	tgg	gag	aat	cag	gaa	ggg	cgt	657
Ser	His	Arg	Glu	Pro	Glu	Val	Pro	Ser	Trp	Glu	Asn	Gln	Glu	Gly	Arg	
		150					155					160				
ggt	gca	cag	caa	gtc	acc	gct	ccg	cgt	tca	gtc	aaa	gga	gtt	gag	tat	705
Gly	Ala	Gln	Gln	Val	Thr	Ala	Pro	Arg	Ser	Val	Lys	Gly	Val	Glu	Tyr	
	165					170					175					
gaa	gtt	cca	gca	agt	atc	tcc	ctc	tta	agc	gac	ggg	cag	aga	tac	gag	753
Glu	Val	Pro	Ala	Ser	Ile	Ser	Leu	Leu	Ser	Asp	Gly	Gln	Arg	Tyr	Glu	
180					185					190					195	
gag	cca	gat	gat	tcg	ctg	tac	tta	gaa	gaa	ggg	gaa	ggt	gaa	gag	tct	801
Glu	Pro	Asp	Asp	Ser	Leu	Tyr	Leu	Glu	Glu	Gly	Glu	Gly	Glu	Glu	Ser	
				200				205						210		
ctt	ggg	tac	cct	gaa	gat	gtt	ttg	gag	gaa	ggg	gcc	ggc	gat	gac	cca	849
Leu	Gly	Tyr	Pro	Glu	Asp	Val	Leu	Glu	Glu	Gly	Ala	Gly	Asp	Asp	Pro	
			215					220					225			
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Gln	Cys	Phe	Val	Tyr	Asp	Ser	Glu	Glu	Glu	Cys	Glu	Tyr	Glu	Glu	Asn	
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Met	Gly	Ser	Ser	Gly	Glu	Asp	Ser	Ser	Cys	Asp	Asp	Thr	Ser	Glu	Thr	
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Phe	Gln	His	Val	Leu	Ser	Cys	Leu	Asn	Met	Asp	Arg	Asn	Arg	Lys	Leu	
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ctc	cca	gag	ttc	gtg	agg	cag	ttt	tcc	ata	gac	cga	gga	tgt	gag	tgg	1089
Leu	Pro	Glu	Phe	Val	Arg	Gln	Phe	Ser	Ile	Asp	Arg	Gly	Cys	Glu	Trp	
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aca	ccc	aag	acc	cca	gga	gac	tta	gct	tgg	aat	ttc	ttg	atg	aaa	gtt	1137
Thr	Pro	Lys	Thr	Pro	Gly	Asp	Leu	Ala	Trp	Asn	Phe	Leu	Met	Lys	Val	
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Gln	Ala	Leu	Asp	Ser	Thr	Ala	Arg	Asp	Ser	Ile	Leu	Arg	Pro	Glu	Val	
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Ala	Gly	Glu	Glu	Asn	Glu	Glu	Leu	Pro	Ala	Gly	Ile	Glu	Lys	Leu	Gly	
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Ile	Gly	Asp	Pro	Gln	Thr	Ile	His	Pro	Leu	Asp	Val	Leu	Cys	Ala	Cys	
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Tyr	Gln	Cys	Gln	Phe	Ala	Leu	Pro	Leu	Leu	Leu	Pro	Asp	Ala	Glu	Asn	
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Asn	Lys	Asn	Leu	Leu	Met	Val	Gly	Ala	Met	Lys	Asp	Leu	Lys	Gln	Pro	
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Ser	Phe	Ser	Lys	Ser	Arg	Ile	Val	Asn	Thr	Leu	Leu	Ser	Ser	Ser	Gln	
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cag	aaa	cca	tac	ccg	att	ttc	ctc	cat	cag	gat	ctg	tct	gtc	cct	gtg	1617
Gln	Lys	Pro	Tyr	Pro	Ile	Phe	Leu	His	Gln	Asp	Leu	Ser	Val	Pro	Val	
		470				475						480				
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cct	gac	aag	ttg	ctg	aag	gaa	agc	ccg	cat	gct	ttc	cag	aaa	cct	gtt	1713
Pro	Asp	Lys	Leu	Leu	Lys	Glu	Ser	Pro	His	Ala	Phe	Gln	Lys	Pro	Val	
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ctt ggt gag aag gaa tgg gac ttg cta atg ttt tta gga gag gac acc Leu Gly Glu Lys Glu Trp Asp Leu Leu Met Phe Leu Gly Glu Asp Thr 550 555 560	1857
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gat cac agc aga ggg cta agt ggt tct ttc cat tcc cat gct aaa ccc Asp His Ser Arg Gly Leu Ser Gly Ser Phe His Ser His Ala Lys Pro 740 745 750 755	2433

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Thr His Ser Lys Ala Phe Gln Ala Asn Cys His His Pro His Pro Ser	
760 765 770	
cat gct aaa ccc act cat gtg aat ccc tct cat gct aac ccc act cat	2529
His Ala Lys Pro Thr His Val Asn Pro Ser His Ala Asn Pro Thr His	
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Val Gln Pro Cys Met Leu Asn Pro Leu Thr Leu Arg Pro Ser Lys Leu	
790 795 800	
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Asn Pro Leu Pro Leu Arg Pro Leu Gly Ala Lys Leu Thr Ala Ile Met	
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ccc atc cct ccc ttg cta aac cct ctc ata cga atc cct ctg atg cta	2673
Pro Ile Pro Pro Leu Leu Asn Pro Leu Ile Arg Ile Pro Leu Met Leu	
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acc cca ctc atg tgc agc ctt ccc atg cta aac ccg ctc atc tac agt	2721
Thr Pro Leu Met Cys Ser Leu Pro Met Leu Asn Pro Leu Ile Tyr Ser	
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Leu Pro Lys Gln Asn Pro Pro His Pro Asn Leu Leu Gln Phe Thr Ala	
855 860 865	
cac aaa cct cag cag tcc cag tct aag cct tct cag cag aga ccc agt	2817
His Lys Pro Gln Gln Ser Gln Ser Lys Pro Ser Gln Gln Arg Pro Ser	
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Gln Pro Lys Ser Phe Gln Thr Lys Pro Ser Gln Ala Arg Ala Cys His	
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Pro Arg Ala Gly Arg Arg	
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<212> PRT

<213> Rattus rattus

<400> 52

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Ala	Ile	Thr	Asp	Pro	Leu	Lys	Lys	Ser	Arg	Lys	Leu	Leu	Ile	Leu	Ile
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Glu	Gly	Arg	Gly	Ala	Gln	Gln	Val	Thr	Ala	Pro	Arg	Ser	Val	Lys	Gly
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Val	Glu	Tyr	Glu	Val	Pro	Ala	Ser	Ile	Ser	Leu	Leu	Ser	Asp	Gly	Gln
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Glu	Glu	Asn	Met	Gly	Ser	Ser	Gly	Glu	Asp	Ser	Ser	Cys	Asp	Asp	Thr
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Ser	Glu	Thr	Cys	Val	Pro	Leu	Glu	Gly	Glu	Lys	Ser	Ala	Glu	Glu	Arg
		260						265					270		
Lys	Arg	Val	Phe	Gln	His	Val	Leu	Ser	Cys	Leu	Asn	Met	Asp	Arg	Asn
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Arg	Lys	Leu	Leu	Pro	Glu	Phe	Val	Arg	Gln	Phe	Ser	Ile	Asp	Arg	Gly
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Cys	Glu	Trp	Thr	Pro	Lys	Thr	Pro	Gly	Asp	Leu	Ala	Trp	Asn	Phe	Leu	305	310	315	320
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Pro	Glu	Val	Ala	Gly	Glu	Glu	Asn	Glu	Glu	Leu	Pro	Ala	Gly	Ile	Glu	340	345	350	
Lys	Leu	Gly	Ile	Gly	Asp	Pro	Gln	Thr	Ile	His	Pro	Leu	Asp	Val	Leu	355	360	365	
Cys	Ala	Cys	Met	Leu	Cys	Ala	Asp	Ser	Ser	Leu	Gln	Arg	Glu	Val	Met	370	375	380	
Ser	Asn	Met	Tyr	Gln	Cys	Gln	Phe	Ala	Leu	Pro	Leu	Leu	Leu	Pro	Asp	385	390	395	400
Ala	Glu	Asn	Asn	Lys	Asn	Leu	Leu	Met	Val	Gly	Ala	Met	Lys	Asp	Leu	405	410	415	
Lys	Gln	Pro	Ser	Ala	Gln	Ser	Ser	Gly	Gly	Pro	Leu	Arg	Glu	Thr	Asp	420	425	430	
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Lys	Pro	Val	Ala	Val	Ala	Asn	Leu	Arg	Gly	Asp	Leu	Glu	Ser	Phe	Trp	515	520	525	
Ile	Gln	Phe	Gly	Phe	Leu	Val	Glu	Val	Ser	Ser	Gly	Leu	Phe	Phe	Phe	530	535	540	
Thr	Asp	Cys	Leu	Gly	Glu	Lys	Glu	Trp	Asp	Leu	Leu	Met	Phe	Leu	Gly	545	550	555	560
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Ser	Pro	Thr	Thr	Val	Glu	Gly	Glu	Asn	Gln	Gln	Pro	Cys	Ser	Gln	Thr	660	665	670	
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Ala	Gln	Cys	Asp	Asp	Ser	Gln	Asn	Ala	Pro	Val	Phe	His	Gln	Thr	Pro	690	695	700	
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Gly	Gly	Asn	Phe	Tyr	His	Val	Pro	Leu	Asn	Ala	Pro	Trp	Leu	Trp	Ala	725	730	735	
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Ala	Lys	Pro	Thr	His	Ser	Lys	Ala	Phe	Gln	Ala	Asn	Cys	His	His	Pro	755	760	765	
His	Pro	Ser	His	Ala	Lys	Pro	Thr	His	Val	Asn	Pro	Ser	His	Ala	Asn	770	775	780	
Pro	Thr	His	Val	Gln	Pro	Cys	Met	Leu	Asn	Pro	Leu	Thr	Leu	Arg	Pro	785	790	795	800

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 820 825 830
 Leu Met Leu Thr Pro Leu Met Cys Ser Leu Pro Met Leu Asn Pro Leu
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 Ile Tyr Ser Leu Pro Lys Gln Asn Pro Pro His Pro Asn Leu Leu Gln
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Leu Lys Cys Leu Phe Ser Thr Phe Pro Gln Leu Ala Ala Ile Cys Gly
80 85 90

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		915					920					925			
Leu	Gln	Ile	Gly	Ser	His	Pro	Met	Cys	Lys	Ser	Ser	Gln	Phe	Lys	Ser
	930					935					940				
Asp	Gln	Ser	Asn	Pro	Ser	Thr	Val	Lys	His	Ser	Gln	Pro	Lys	Pro	Phe
945					950					955					960
His	Ser	Val	Pro	Ser	Gln	Pro	Lys	Ser	Ser	Gln	Thr	Lys	Ser	Cys	Gln
				965					970					975	

Ser Gln Pro Ser Gln Thr Lys Pro Ser Pro Cys Lys Ser Thr Gln Pro
 980 985 990
 Lys Pro Ser Gln Pro Trp Pro Pro Gln Ser Lys Pro Ser Gln Pro Arg
 995 1000 1005
 Pro Pro Gln Pro Lys Ser Ser Thr Asn Pro Ser Gln Ala Lys Ala
 1010 1015 1020
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 1025 1030 1035

<210> 56
 <211> 3111
 <212> DNA
 <213> Homo sapiens

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 gaggaagagt atgagactct ggagaatggt acagatctcc tgaagaaaaag tcggaagctg 180
 ttaatttttg tacagaaaaa gggagaggcg acctgtcagc attttctcaa gtgtttattt 240
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 aatacagtac ctctcaatc tatgggggca agcagtaatt cagaagatgc tttttctcct 360
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<210> 57
 <211> 70
 <212> PRT
 <213> Mus musculus

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<400> 57
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Glu Val Asp Gly Val Leu Asp Ala Leu His Gly Ser Val Leu Thr Glu
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Gly Gln Tyr Gln Ala Val Arg Ala Glu Thr Thr Ser Gln Asp Lys Met
             35             40             45
Arg Lys Leu Phe Ser Phe Val Pro Ser Trp Asn Leu Thr Cys Lys Asp
             50             55             60
Ser Leu Leu Gln Ala Leu
             65             70

```

<210> 58
 <211> 71
 <212> PRT
 <213> Homo sapiens

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<400> 58
Gly Leu His Phe Ile Asp Gln His Arg Ala Ala Leu Ile Ala Arg Val
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Thr Asn Val Glu Trp Leu Leu Asp Ala Leu Tyr Gly Lys Val Leu Thr
             20             25             30
Asp Glu Gln Tyr Gln Ala Val Arg Ala Glu Pro Thr Asn Pro Ser Lys
             35             40             45
Met Arg Lys Leu Phe Ser Phe Thr Pro Ala Trp Asn Trp Thr Cys Lys
             50             55             60
Asp Leu Leu Leu Gln Ala Leu
             65             70

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<210> 59
 <211> 107
 <212> PRT
 <213> Rattus rattus

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<400> 59
Met Ala Ser Glu Gly Ala Ser Ser Glu Ile Ile Glu Lys Gln Arg Thr
 1             5             10             15
Lys Leu Leu Ser Val Leu Gln Gln Asp Pro Asp Ser Ile Leu Asp Thr
             20             25             30
Leu Thr Ser Arg Arg Leu Ile Ser Glu Glu Glu Tyr Glu Thr Leu Glu
             35             40             45
Ala Ile Thr Asp Pro Leu Lys Lys Ser Arg Lys Leu Leu Ile Leu Ile
             50             55             60
Gln Lys Lys Gly Glu Asp Ser Cys Cys Cys Phe Leu Lys Cys Leu Ser
             65             70             75             80
Asn Ala Phe Pro Gln Ser Ala Ser Thr Leu Gly Leu Lys Gln Glu Val
             85             90             95
Pro Arg Gln Gly Thr Gly Glu Val Val Glu Val
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                Met Gly Arg Ala Arg Asp Ala Ile
                        1                5

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ctg gac gct ctt gaa aac ttg tca ggg gat gaa ctc aaa aag ttc aag 160
Leu Asp Ala Leu Glu Asn Leu Ser Gly Asp Glu Leu Lys Lys Phe Lys
10 15 20

atg aag ctg ctg aca gtg caa ctg cga gaa ggc tat ggg cgc atc cca 208
Met Lys Leu Leu Thr Val Gln Leu Arg Glu Gly Tyr Gly Arg Ile Pro
25 30 35 40

cgc ggg gcc ctg ctg cag atg gac gcc ata gat ctc act gac aaa ctt 256
 Arg Gly Ala Leu Leu Gln Met Asp Ala Ile Asp Leu Thr Asp Lys Leu
 45 50 55

gtc agc tac tat ctg gag tcg tat ggc ttg gag ctc aca atg act gtg 304
Val Ser Tyr Tyr Leu Glu Ser Tyr Gly Leu Glu Leu Thr Met Thr Val
60 65 70

ctt aga gac atg ggc tta cag gag ctg gct gag cag ctg caa acg act 352
 Leu Arg Asp Met Gly Leu Gln Glu Leu Ala Glu Gln Leu Gln Thr Thr
 75 80 85

aaa gaa gag tct gga gct gtg gca gct gca gcc agt gtc cct gct cag 400
Lys Glu Glu Ser Gly Ala Val Ala Ala Ala Ala Ser Val Pro Ala Gln
90 95 100

agt aca gcc aga aca gga cac ttt gtg gac cag cac agg caa gca ctc 448
Ser Thr Ala Arg Thr Gly His Phe Val Asp Gln His Arg Gln Ala Leu
105 110 115 120

att gcc agg gtc aca gaa gtg gac gga gtg ctg gat gct ttg cat ggc 496
Ile Ala Arg Val Thr Glu Val Asp Gly Val Leu Asp Ala Leu His Gly
125 130 135

agt gtg ctg act gaa gga cag tac cag gca gtt cgt gca gag acc acc 544
 Ser Val Leu Thr Glu Gly Gln Tyr Gln Ala Val Arg Ala Glu Thr Thr
 140 145 150

agc caa gac aag atg agg aag ctc ttc agc ttt gtt cca tcc tgg aac 592
Ser Gln Asp Lys Met Arg Lys Leu Phe Ser Phe Val Pro Ser Trp Asn
155 160 165

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Leu	Thr	Cys	Lys	Asp	Ser	Leu	Leu	Gln	Ala	Leu	Lys	Glu	Ile	His	Pro	
	170					175					180					

tac ttg gtg atg gac ctg gag cag agc tgaggatatct tttccagcta 687
 Tyr Leu Val Met Asp Leu Glu Gln Ser
 185 190

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747
 777

<210> 61
 <211> 193
 <212> PRT
 <213> Mus musculus

<400> 61
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 20 25 30
 Arg Glu Gly Tyr Gly Arg Ile Pro Arg Gly Ala Leu Leu Gln Met Asp
 35 40 45
 Ala Ile Asp Leu Thr Asp Lys Leu Val Ser Tyr Tyr Leu Glu Ser Tyr
 50 55 60
 Gly Leu Glu Leu Thr Met Thr Val Leu Arg Asp Met Gly Leu Gln Glu
 65 70 75 80
 Leu Ala Glu Gln Leu Gln Thr Thr Lys Glu Glu Ser Gly Ala Val Ala
 85 90 95
 Ala Ala Ala Ser Val Pro Ala Gln Ser Thr Ala Arg Thr Gly His Phe
 100 105 110
 Val Asp Gln His Arg Gln Ala Leu Ile Ala Arg Val Thr Glu Val Asp
 115 120 125
 Gly Val Leu Asp Ala Leu His Gly Ser Val Leu Thr Glu Gly Gln Tyr
 130 135 140
 Gln Ala Val Arg Ala Glu Thr Thr Ser Gln Asp Lys Met Arg Lys Leu
 145 150 155 160
 Phe Ser Phe Val Pro Ser Trp Asn Leu Thr Cys Lys Asp Ser Leu Leu
 165 170 175
 Gln Ala Leu Lys Glu Ile His Pro Tyr Leu Val Met Asp Leu Glu Gln
 180 185 190
 Ser

<210> 62
 <211> 579
 <212> DNA
 <213> Mus musculus

<400> 62
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<210> 63
 <211> 32042
 <212> DNA
 <213> Homo sapiens

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<210> 64
<211> 88
<212> PRT
<213> Homo sapiens

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<400> 64
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Ile Leu Gln His Asp Pro Asp Ser Ile Leu Asp Thr Leu Thr Ser Arg
      20             25             30
Arg Leu Ile Ser Glu Glu Glu Tyr Glu Thr Leu Glu Asn Val Thr Asp
      35             40             45
Leu Leu Lys Lys Ser Arg Lys Leu Leu Ile Leu Val Gln Lys Lys Gly
      50             55             60
Glu Ala Thr Cys Gln His Phe Leu Lys Cys Leu Phe Ser Thr Phe Pro
      65             70             75             80
Gln Leu Ala Ala Ile Cys Gly Leu
      85

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<210> 65
<211> 208
<212> PRT
<213> Rattus rattus

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<400> 65

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Pro Val Phe His Gln Thr Pro Val Tyr Met Pro Tyr Pro Ala His Pro
 1          5          10          15
Trp Ala Leu Ala Ile Lys Ala Gly Gly Asn Phe Tyr His Val Pro Leu
          20          25          30
Asn Ala Pro Trp Leu Trp Ala Pro Thr Leu Asp His Ser Arg Gly Leu
          35          40          45
Ser Gly Ser Phe His Ser His Ala Lys Pro Thr His Ser Lys Ala Phe
          50          55          60
Gln Ala Asn Cys His His Pro His Pro Ser His Ala Lys Pro Thr His
          65          70          75          80
Val Asn Pro Ser His Ala Asn Pro Thr His Val Gln Pro Cys Met Leu
          85          90          95
Asn Pro Leu Thr Leu Arg Pro Ser Lys Leu Asn Pro Leu Pro Leu Arg
          100          105          110
Pro Leu Gly Ala Lys Leu Thr Ala Ile Met Pro Ile Pro Pro Leu Leu
          115          120          125
Asn Pro Leu Ile Arg Ile Pro Leu Met Leu Thr Pro Leu Met Cys Ser
          130          135          140
Leu Pro Met Leu Asn Pro Leu Ile Tyr Ser Leu Pro Lys Gln Asn Pro
          145          150          155          160
Pro His Pro Asn Leu Leu Gln Phe Thr Ala His Lys Pro Gln Gln Ser
          165          170          175
Gln Ser Lys Pro Ser Gln Gln Arg Pro Ser Gln Pro Lys Ser Phe Gln
          180          185          190
Thr Lys Pro Ser Gln Ala Arg Ala Cys His Pro Arg Ala Gly Arg Arg
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<210> 66

<211> 70

<212> PRT

<213> Mus musculus

<400> 66

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Gly His Phe Val Asp Gln His Arg Gln Ala Leu Ile Ala Arg Val Thr
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Glu Val Asp Gly Val Leu Asp Ala Leu His Gly Ser Val Leu Thr Glu
          20          25          30
Gly Gln Tyr Gln Ala Val Arg Ala Glu Thr Thr Ser Gln Asp Lys Met
          35          40          45
Arg Lys Leu Phe Ser Phe Val Pro Ser Trp Asn Leu Thr Cys Lys Asp
          50          55          60
Ser Leu Leu Gln Ala Leu
          65          70

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<210> 67

<211> 94

<212> PRT

<213> Artificial Sequence

<220>

<223> Consensus sequence

<400> 67

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Met Ala Glu Asp Glu Arg Arg Leu Leu Lys Lys Asn Arg Val Arg Leu
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Ile Glu Ser Leu Gly Leu Asp Val Leu Asp Glu Leu Leu Asp Val Leu
          20          25          30
Leu Glu Lys Asp Val Leu Asn Leu Lys Glu Glu Glu Lys Ile Lys Arg
          35          40          45
Ala Gly Ala Lys Leu Glu Asp Lys Ala Arg Glu Leu Val Asp Ser
          50          55          60

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Leu Gln Arg Arg Gly Ser Gln Ala Phe Asp Ala Phe Ile Asp Ala Leu
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 Glu Asp Thr Gly Gly Ser Tyr Leu Ala Asp Val Leu Glu Leu
 85 90

<210> 68
 <211> 25
 <212> DNA
 <213> Homo sapiens

<400> 68
 taggacctcg gtacccgcgc gcgcg

25

<210> 69
 <211> 25
 <212> DNA
 <213> Homo sapiens

<400> 69
 cgccggcccc taggacctcg gtacc

25

<210> 70
 <211> 94
 <212> PRT
 <213> Homo sapiens

<400> 70
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 1 5 10 15
 Gly Ala Glu Val Leu Val Glu Gly Leu Val Leu Gln Tyr Leu Tyr Gln
 20 25 30
 Glu Gly Ile Leu Thr Glu Asn His Ile Gln Glu Ile Asn Ala Gln Thr
 35 40 45
 Thr Gly Leu Arg Lys Thr Met Leu Leu Leu Asp Ile Leu Pro Ser Arg
 50 55 60
 Gly Pro Lys Ala Phe Asp Thr Phe Leu Asp Ser Leu Gln Glu Phe Pro
 65 70 75 80
 Trp Val Arg Glu Lys Leu Lys Lys Ala Arg Glu Glu Ala Met
 85 90

<210> 71
 <211> 109
 <212> PRT
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<220>
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<221> VARIANT
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 Ala Leu Leu Ala Arg Val Thr Glu Asp Pro Xaa Asp Ser Leu Leu Asp
 20 25 30
 Ala Leu Leu S r Arg Asp Leu Ile Ser Glu Glu Asp Tyr Glu Ala Val
 35 40 45
 Glu Ala Glu Thr Thr Xaa Leu Ser Lys Val Arg Lys Leu Leu Ile Leu
 50 55 60

67/67

Val	Gln	Ser	Lys	Gly	Glu	Glu	Thr	Cys	Lys	Xaa	Phe	Leu	Lys	Cys	Leu
65					70					75					80
Leu	Gln	Ala	Leu	Lys	Asp	Ser	Ala	Ala	Tyr	Leu	Gly	Leu	Asp	Pro	Glu
				85					90					95	
Val	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Leu	Glu	Xaa	Ser		
			100							105					